

Team C4ISR

Team C4ISR and Industry...
Partnering in Support
of the Joint Warfighter
June 1-2, 2004

Advance
Planning
Briefing for
Industry



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REPLY TO
ATTENTION OF

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AND FORT MONMOUTH

FORT MONMOUTH, NEW JERSEY 07703-5000

Office of the Deputy Chief of Staff for Operations and Plans

Ladies and Gentlemen:

On behalf of the Army Team, Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR), it is my pleasure to welcome you to the 2004 Advance Planning Briefing for Industry (APBI). The theme of this year's conference is "Team C4ISR and Industry Partnering in Support of the Joint Warfighter."

Global security demands one flexible, formidable and joint fighting force equipped with the most sophisticated and technologically superior equipment. The APBI Program continues to be one of our most successful ways of strengthening the government's partnership with industry and ensuring improved combat effectiveness for our military forces. The exchange of information at these forums is key to enabling Joint Warfighters to fight smarter with less risk.

A printed copy of the proceedings and a compact disk containing information about the APBI presentations are being provided to you. The presentations include our Army requirements, sustainment efforts and corresponding contract opportunities available to industry.

I thank you for your participation in the APBI and hope you pursue future business opportunities with Team C4ISR.

Sincerely,

A handwritten signature in black ink, appearing to read "William H. Russ", is written over a horizontal line.

William H. Russ
Major General, U.S. Army
Commanding

NOTICE

This publication contains the briefings presented during this Advance Planning Briefing for Industry (APBI). Following the APBI, you may obtain a Proceedings Book for a minimal fee by contacting the Defense Technical Information Center (DTIC). The telephone number is: (800) 225-3842.

We hope that the above publication proves beneficial to your long-range planning efforts. If you have any additional questions and/or suggestions, please contact Denise Ellison, email: Denise.Ellison@us.army.mil, (732) 532-8674.

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WELCOMING REMARKS

MG WILLIAM H. RUSS

**COMMANDING GENERAL
CECOM**

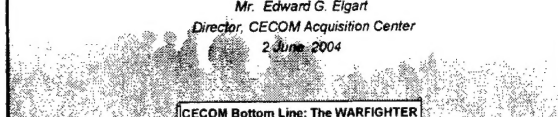


CECOM Acquisition Center




Contractors Accompanying the Force


Mr. Edward G. Elgart
Director, CECOM Acquisition Center
2 June 2004



CECOM Bottom Line: The WARFIGHTER





Agenda



- ☆ Background
- ☆ Management of Contractors
- ☆ Regulations & Policies
- ☆ What's In the Future
- ☆ The Good, the Bad & the Ugly
- ☆ CECOM Top Ten Lists
- ☆ Team C4I/EWS Contract Opportunities

CECOM Bottom Line: The WARFIGHTER



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Background

CECOM Bottom Line: The WARFIGHTER

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Background

- Contractor support is designed to augment military force structure -- not replace it
- Contractor support is used on an "as needed" basis
- Contractor contributions are a valuable force multiplier to the success of our Armed Forces
- Army's ability to manage operational contractor support (OCS) directly impacts readiness and sustainment
- New regulations lay out specific guidelines about chain of command and contract requirements

CECOM Bottom Line: The WARFIGHTER

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Background

- Army has become increasingly more reliant on private companies
 - Logistical, technical support, combat support (CS), and combat service support (CSS) functions
 - Operation Desert Storm- 916 contractors personnel deployed to provide maintenance, technical assistance, and equipment support
 - Operation Enduring Freedom (OEF)/ Operation Iraqi Freedom (OIF) - 32,000 repair contractor personnel in the Central Command region sent by AMC alone

CECOM Bottom Line: The WARFIGHTER


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Management of Contractors

CECOM Bottom Line: The WARFIGHTER


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Management of Contractors


• *The management mechanism is the contract itself as defined by the terms and conditions*

- Not under the direct supervision of military personnel
- The PCO and/or COR will monitor contractor performance and maintain day-to-day liaison activities



CECOM Bottom Line: The WARFIGHTER


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Management of Contractors


• Following clauses are included in all contracts that require contractor deployment:

- FAR 52.228-3 Worker's Compensation Insurance:
 - As required by the Defense Base Act, Contractor must provide workers' compensation insurance
- FAR 52.228-4 Worker's Compensation and War Hazards Insurance Overseas
 - Benefits not otherwise covered by workers' compensation insurance are covered under the standards of the War Hazards Compensation Act
 - Contractor shall include this clause in all subcontracts or be responsible/liable for subcontractor employees




CECOM Bottom Line: The WARFIGHTER

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Management of Contractors

- DFARS 252.228-7000 Reimbursement for War Hazard Losses
 - Contractor will be reimbursed by the Government costs for providing employee war-hazard benefits in accordance with the Workers' Compensation and War-Hazard Insurance clause
- DFARS 252.228-7003 Capture and Detention
 - The Government will reimburse the Contractor monies paid to captured person or person's dependents
 - Monies will not be paid if the employees were entitled to compensation for capture and detention under the War Hazards Compensation Act



CECOM Bottom Line: The WARFIGHTER



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Management of Contractors



- DFARS 252.225-7043 Antiterrorism/Force Protection Policy for Defense Contractors Outside the US
 - Requires contractors to affiliate with the Overseas Security Advisory Council
 - Requires contractor and subcontractor personnel to register with the U.S. Embassy and comply with any security related requirements
- DFARS 252.209-7001 Disclosure of Ownership or Control by Government of a Terrorist Country
 - If the government of a terrorist country has a significant interest in the Offeror or a subsidiary of the Offeror, the Offeror shall disclose such interest

CECOM Bottom Line: The WARFIGHTER
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Exiting and Forthcoming Regulations and Policies


CECOM Bottom Line: The WARFIGHTER
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Existing

- Army doctrine:
 - FM 3.100-21 - Contractors on the Battlefield
- Army regulation:
 - AR 715-9, Contractors Accompanying the Force
 - AFARS Clause 5152.225-74-9000 Contractors Accompanying the Force
- Army policy
 - AFARS Manual #2, Contingency Contracting

CECOM Bottom Line: The WARFIGHTER
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FM 3.100-21




FM 3.100-21 - Contractors on the Battlefield


- Theater support command is the lead organization to manage and maintain visibility for all contractors
- Commanders do not have direct control over contractor employees (only contractors manage and supervise their employees)
- The terms and conditions of contract establishes relationship between military and contractor – the link is the PCO/COR
- Contractors are required to perform all tasks identified within the Statement of Work (SOW)/Statement of Objectives (SOO)

CECOM Bottom Line: The WARFIGHTER

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FM 3.100-21




- Military units retain responsibility for ensuring all contractors deployed are prepared in accordance with AR 715-9
- Contractors may operate in the combat zone (if contract provides)
- Contractors can perform potentially any function except inherently governmental functions
- Establishes three conditions that must be met before contractor personnel can carry firearms
 - Commander in the area of operations must approve the carrying of firearms by contractors
 - Contractor company policy must permit its employees to carry arms
 - Contractor employee must agree to carry a firearm

CECOM Bottom Line: The WARFIGHTER

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AR 715-9




AFARS 5152.225-74-9000 Contractors Accompanying the Force


- Provides uniform, Department-wide guidelines for contractors accompanying military forces in hostile environments
- Clause addresses top-level issues
 - Assure coordination of operational requirements in the contract; and with the Combatant Commander in theater
 - Notification that operations may be in a dangerous environment
 - Be aware of pertinent rules and regulations in an OCONUS location
- Other critical areas covered
 - Purchasing Limited Resources
 - Vehicle and Equipment Operation
 - Contractor Personnel Administration
 - Compliance with Combatant Command Orders
 - Clothing and Equipment Issue
 - Weapons and Training
 - Passports, Visas and Customs

CECOM Bottom Line: The WARFIGHTER

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AFARS Manual #2




- Provides guidance for implementing the FAR, DFARS, and AFARS
- Provides general information on:
 - Legal Authorities, Limitations, and Policies
 - International Relations
 - Duties and Responsibilities
 - Contracting Procedures During Contingency Operations
 - Claims, Seizures, Disputes and Appeals
 - Contingency Contracting Support Kit

CECOM Bottom Line: The WARFIGHTER

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Forthcoming




- New DOD Directive/DOD Instruction
- New DFARS clause
- Update AFARS Manual #2 (Contingency Contracting)
- Develop AFARS Manual #3 (Contractors on the Battlefield)
- Revise FM 3.100-21 (Contractors on the Battlefield)

CECOM Bottom Line: The WARFIGHTER

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DFARS Clause




- Pending DFARS clause 252.225-70XX
 - Issued for comment in Federal Register, dated March 23, 2004 (Volume 69, Number 56); comments due March 24, 2004
 - Contractor accepts the risks associated with required contract performance
 - Contractor is responsible for all resources required to perform contractual effort
 - Contractor shall comply with all laws and regulations (Host Nation, treaties, etc.)
 - Contractor shall have a plan to remove/replace any personnel who jeopardize mission completion
 - Provides contractor all pre-deployment requirements
 - Instructions of the Combatant Commander take precedence of any existing terms of this clause
 - Authorizes contractors to carry privately-owned weapons

CECOM Bottom Line: The WARFIGHTER




Draft DOD Directive and Instruction




- Draft DoD Directive and DoD Instruction
 - Both titled “Management of Contractor Personnel During Contingency Operations”
 - Currently in staffing
 - Content covers many of the same areas as both the Army and DoD clauses:
 - Applicability of laws
 - Continuation of essential services
 - Deployment processing
 - Clothing & equipment
 - Weapons
 - Personnel accountability
 - Administrative preparation

CECOM Bottom Line: The WARFIGHTER

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AFARS & DFARS Comparison




- DFARS text includes existing AFARS text
 - Notification of Next of Kin
 - Evacuation of personnel and bodies
 - Insurance
 - Changes and Emergency Changes
 - DFARS allows combatant commander to “trump” contract transportation, logistical, and support requirements and the contractor may request an equitable adjustment
 - There is a separate paragraph that allows the same in “emergencies”
 - Clarifies contractor is responsible for all its employees’ support unless told otherwise in the contract or combatant commander’s operational order

CECOM Bottom Line: The WARFIGHTER

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AFARS & DFARS Comparison





- DFARS provides clarification language
 - Clause applies to service, construction, and supply contracts when contractors must accompany or be available to accompany a force in contingency, humanitarian, peacekeeping, or combat operations outside the US
- DFARS clause adds coverage to Part 12 (i.e. this can be used in commercial contracts)
- Authorized weapon
 - DFARS authorizes privately owned weapons
 - AFARS only authorizes government issue weapons
 - May be intended to address desire to allow contractors to provide their own security
 - Does not include requirement for contractor and employee to agree to carry a weapon, as does the AFARS clause

***Current indication is that upon implementation of DFARS Clause, AFARS language will be revised or deleted.

CECOM Bottom Line: The WARFIGHTER


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Contractors Accompanying the Force: The Good, Bad, and Ugly

CECOM Bottom Line: The WARFIGHTER

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The Good




- Contractor deployment provides for the increase/decrease of available support resources quickly in response to changing requirements
 - Can extend existing military capability,
 - Provide alternative sources of supplies and services, or
 - Provide capabilities for which no military capability exists

CECOM Bottom Line: The WARFIGHTER

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The Bad - *RISK*



- Contractors cannot provide their own security; require military escorts resulting in additional military personnel
- Proximity to the battlefield
- Nuclear, Biological, Chemical (NBC) threat – protective gear not guaranteed
- Classified as noncombatants
 - An individual in any unit of the armed forces which is unarmed at all times
 - When armed, unclear distinction as to combatant/noncombatant
 - Result is contractor is afforded some, but not all, of the protections

CECOM Bottom Line: The WARFIGHTER

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The Ugly

- Lack of contractor performance
 - Poor performance/no performance
 - Potential of individuals to walk off the job
 - Legal ramifications (i.e. Contract termination, consideration)
- Limited or no alternatives/remedies available to commander in the field

CECOM Bottom Line: The WARFIGHTER



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CECOM Top 10 Lists

CECOM Bottom Line: The WARFIGHTER

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CECOM Top Ten Large Businesses - FY2003

Contractor	# Actions	Total \$
•Raytheon	292	492.0M
•General Dynamics	404	415.0M
•Lockheed	503	325.0M
•ITT	179	269.0M
•MITRE	92	259.0M
•Northrop Grumman	344	219.0M
•ARINC	324	182.0M
•TRW	168	167.0M
•Harris	87	129.0M
•Computer Sciences	166	112.0M

CECOM Bottom Line: The WARFIGHTER

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CECOM Top Ten Small Businesses - FY2003		
Contractor	# Actions	Total \$
•Signal Corp/Vendian IT Services	316	176.0M
•Bren-Tronics, Inc.	24	78.0M
•Sytex, Inc.	175	70.0M
•Ultralife Batteries, Inc.	12	51.0M
•EIOR Technologies, Inc.	185	48.0M
•Chenega Technology Services	105	47.0M
•Fibertek, Inc.	156	38.0M
•TAMSCO	24	35.0M
•Datapath, Inc.	52	30.0M
•Galaxy Scientific Corp.	33	27.0M
•Engineering & Professional Services	39	21.0M
CECOM Bottom Line: The WARFIGHTER		

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CECOM Top Ten 8(a) Businesses - FY2003		
Contractor	# Actions	Total \$
•Chenega Technology	105	47.0M
•Engineering Systems Solutions	18	7.8M
•Antenna Research Associates, Inc.	05	4.0M
•Viatch, Inc.	31	3.4M
•Aerospace Integration Corp.	20	3.3M
•Custom Manufacturing & Engineering	04	2.8M
•Chenega Technical Products	02	2.0M
•R&D Electronics	03	1.8M
•ASRC Communications LTC	15	1.4M
•Aquila Management, Inc.	10	1.4M
CECOM Bottom Line: The WARFIGHTER		

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CECOM Top Ten Large Businesses - FY2004 to Date*		
Contractor	# Actions	Total \$
•Raytheon	160	523.0M
•General Dynamics	310	417.0M
•MITRE	45	244.0M
•ITT	67	225.0M
•Boeing	14	209.0M
•Lockheed	212	173.0M
•Computer Sciences	126	170.0M
•BAE	53	139.0M
•ARINC	156	120.0M
•CACI	185	90.0M
* As of 10 May 2004		
CECOM Bottom Line: The WARFIGHTER		

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CECOM Top Ten Small Businesses - FY2004 to Date*		
Contractor	# Actions	Total \$
•TAMSCO	40	78.0M
•EIOR Technologies, Inc.	101	46.0M
•Ultralife Batteries, Inc.	08	43.0M
•Signal Corp/Veridian IT Services	93	43.0M
•Datapath, Inc.	25	41.0M
•Sytex, Inc.	61	24.0M
•Choctaw Manufacturing	07	22.0M
•Engineering & Professional Services	26	20.0M
•Bren-Tronics, Inc.	04	17.0M
•FiberTek, Inc.	86	16.0M
* As of 10 May 2004		
CECOM Bottom Line: The WARFIGHTER		


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CECOM Top Ten 8(a) Businesses - FY2004 to Date*		
Contractor	# Actions	Total \$
•Choctaw Manufacturing	07	22.0M
•Janus Research Group, Inc.	15	11.0M
•Custom Manufacturing & Engineering	09	7.0M
•Chenega Technology	13	6.0M
•ASRC Communications LTC	08	1.4M
•Aerospace Integration Corp	09	1.3M
•Binary Consulting, Inc.	04	1.0M
•New World Environmental, Inc.	04	0.5M
•R&D Electronics	01	0.2M
•Aquila Management, Inc.	01	0.2M
* As of 10 May 2004		
CECOM Bottom Line: The WARFIGHTER		

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Source of Information	
• AMC Website: http://www.amc.army.mil/amc/rda/rda-ac/ck/ck-prime.htm	
-Regulatory documents and suggested contract clause language	
-Other related documents	
•Organizational/Institutional information	
•Technical information	
•Deployment/Health/Personnel information	
•Other information (Country/Cultural, Articles)	
CECOM Bottom Line: The WARFIGHTER	

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CECOM Acquisition Center

Our Ingredients To Success



**PROACTIVE
APPROACH TO
CONTRACTING
EXCELLENCE**




THROUGH


**PEOPLE
AUTOMATION
CONTINUOUS PROCESS IMPROVEMENT
EDUCATION**

CECOM Bottom Line: The WARFIGHTER

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Contract Title



- TITLE:
- CONTRACT TYPE:
- ESTIMATED VALUE:
- KEY MILESTONES:
- TECHNICAL POC:
- ACQUISITION CONTACT:
- SOLICITATION # or RFQ #:

CECOM Bottom Line: The WARFIGHTER

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Contract Opportunities

Mr. Anthony LaPlaca

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CECOM Bottom Line: THE WARFIGHTER
Page # 1




Long Term Contract Definitions

- **Flexible Long Term Contract (FLTC):** range quantity contracts of three or more years covering the production and/or repair of one or more spare parts.
- **Indefinite Delivery Indefinite Quantity (IDIQ) Contract:** a vehicle that provides for an indefinite quantity, within stated limits, of specific supplies or services during a fixed period, with deliveries to be scheduled by placing orders with the contractor. The Government is obligated to a stated minimum. Funds other than the minimum are obligated at the time of subsequent orders.
- **Requirements Contract:** An instrument that provides for filling all purchase requirements of designated Government activities for specific supplies or services during a specified contract period with deliveries to be scheduled by placing orders with the contractor. No money is obligated at award; funds are obligated when delivery orders are written. There is no guaranteed minimum quantity.

CECOM Bottom Line: THE WARFIGHTER
Page # 2

Long Term Contract Definitions (continued)

- **Blanket Purchase Agreement (BPA):** A simplified method of filling the government's anticipated repetitive needs for supplies or services by establishing charge accounts with qualified sources of supply. (FAR 13.303)
 - BPAs are designed to reduce administrative costs in accomplishing simplified acquisitions by eliminating the need for individual purchase documents.
 - Individual purchases under BPAs may not exceed the dollar limitation for simplified acquisitions, and the existence of a BPA does not justify sole source purchasing.
 - BPAs are also being used with vendors that have products or services on the Federal Supply Schedule (FAR 8.404 (b)4).

CECOM Bottom Line: THE WARFIGHTER
Page # 3



LTCs Projected for FY 04-05



- LRC Omnibus III
- Main Alternators for Military Standard Generators
- Repair of AN/APN-209 LRUs
- T-611 and CN-405
- AN/VVS-2(V) Systems Buy
- Spare Parts for AN/VVS-2
- Night Vision Spare Parts
- AN/PVS-4A and AN/TVS-5 Spares
- AN/PVS-7A and AN/PVS-10 LIFs
- Mechanical Scanner
- Arctic LCSS Support System
- Light Emitting Diode Arrays
- AS-3900A and AS-3916 Antennas and Spares

CECOM Bottom Line: THE WARFIGHTER

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LRC Omnibus III



- ☐ Acquire a full range of life cycle integrated logistics, technical, engineering and administrative support services
- ☐ Services will support the LRC and any CECOM activity or organization requiring personnel, facilities, and materials.
- ☐ The goal of this program is to assure maximum mission effectiveness and system operational availability in the most cost effective manner by providing contractor personnel with skill levels and expertise to complement present organic Government capabilities

CECOM Bottom Line: THE WARFIGHTER

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LRC Omnibus III




- ☐ Objective: Award an OMNIBUS Services contract to meet current and future requirements relative to Field and Weapon System Support
- ☐ Contract Type: IDIQ, Multiple Awards, 5 years (2 year basic, 3 one-year award terms)
- ☐ Estimated Value: \$500M - \$700M
- ☐ Key Milestones: Solicitation release: August 2004
Award: December 2004
- ☐ Technical Contact: Jean Cash, 732-532-3042
- ☐ Acquisition Contact: Gail Jablonski, 732-532-4847
- ☐ Solicitation #: W15P7T-04-R-D624


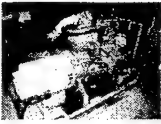
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Main Alternators for Military Standard Generators








CECOM Bottom Line: THE WARFIGHTER

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Main Alternator for Military Standard Generators



- Military Standard Generators are utilized by many different units to provide power in support of their mission
- End Items are: MEP-701, MEP-002, MEP-003, MEP-004, MEP-005, MEP-006
- 22 secondary components
- Engines: 4 and 6 cylinder
- Fuels: Diesel: DL-1,2, and Jet Fuel: JP-8, Jet A-1
- Environmental Capability: -25 deg F (-65 deg w/winterization kit) to 125 deg F, rain, humidity, altitude, sand/dust, transportation, cold storage, salt spray, fungus

CECOM Bottom Line: THE WARFIGHTER

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Main Alternator for Military Standard Generators



□Objective: To support current and future requirements by awarding a Firm Fixed Price contract.

□Contract Type: 5 year basic contract with 5 year option

□Estimated Value: \$3M-\$9.5M

□Key Milestones: Solicitation release: September 2004
Award: November 2004


□Technical Contact: William Hogelin, 732-427-6321

□Acquisition Contact: William Frantz, 732-532-5248


□Solicitation #: DAAB07-03-R-D620

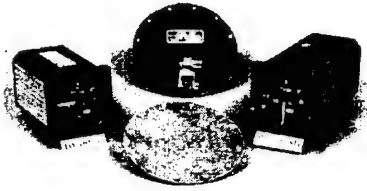
CECOM Bottom Line: THE WARFIGHTER

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Repair of AN/APN-209 LRUs






CECOM Bottom Line: THE WARFIGHTER

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Repair of AN/APN-209 LRUs




- The AN/APN-209(V) Radar Receiving Set is an absolute altimeter that provides an accurate indication of the altitude of an aircraft over all types of terrain.
- Provides safe Nap-of-Earth flying capabilities for helicopters.
- Newest models provide voice warning when the aircraft is above or below certain fixed or pilot adjustable altitudes.

CECOM Bottom Line: THE WARFIGHTER

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Repair of AN/APN-209 LRUs



□Objective: To award a contract for repair of various AN/APN-209 Line Replaceable Units (LRUs).

□Contract Type: IDIQ, 5 years, Best Value

□Estimated Value: \$210K-\$3.5M

□Key Milestones: Solicitation release: August 2004
Award: December 2004

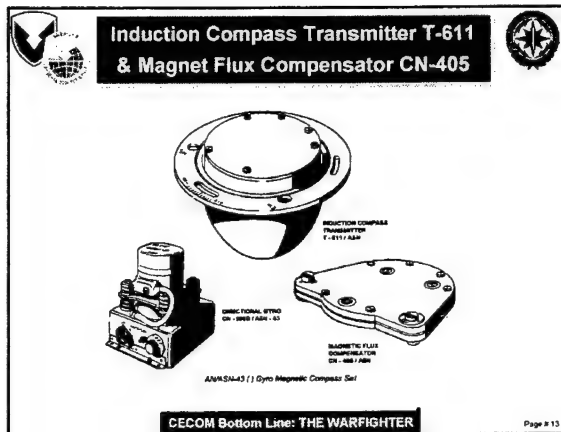
□Technical Contact: David Savitsky, 732-532-1627

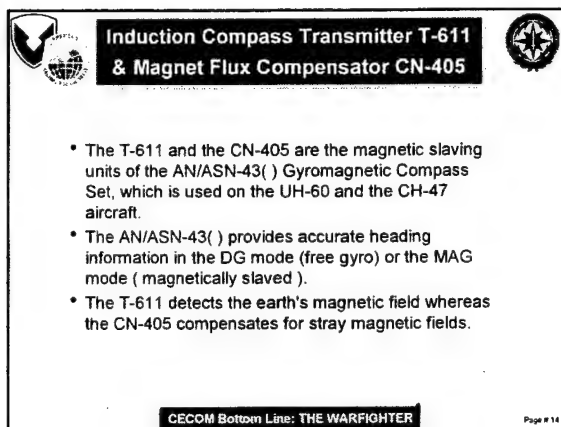
□Acquisition Contact: Thomas McConnell, 732-532-5486

□Solicitation #: TBD

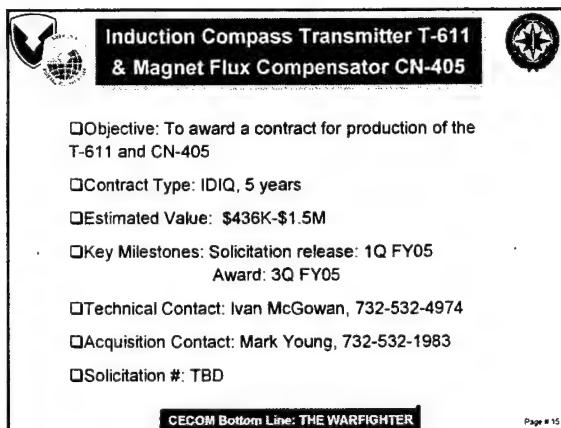
CECOM Bottom Line: THE WARFIGHTER

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- The T-611 and the CN-405 are the magnetic slaving units of the AN/ASN-43() Gyromagnetic Compass Set, which is used on the UH-60 and the CH-47 aircraft.
- The AN/ASN-43() provides accurate heading information in the DG mode (free gyro) or the MAG mode (magnetically slaved).
- The T-611 detects the earth's magnetic field whereas the CN-405 compensates for stray magnetic fields.




- Objective: To award a contract for production of the T-611 and CN-405
- Contract Type: IDIQ, 5 years
- Estimated Value: \$436K-\$1.5M
- Key Milestones: Solicitation release: 1Q FY05
Award: 3Q FY05
- Technical Contact: Ivan McGowan, 732-532-4974
- Acquisition Contact: Mark Young, 732-532-1983
- Solicitation #: TBD




AN/VVS-2(V) Systems Buy






CECOM Bottom Line: THE WARFIGHTER

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AN/VVS-2(V) Systems Buy




- The AN/VVS-2 Driver's Viewer enables a closed-hatch vehicle to be driven during night time conditions without active illumination.
- The Driver's viewer is a through-the-hull/hatch night periscope for armored vehicles.
- There are different versions: AN/VVS-2(V)1A, AN/VVS-2(V)2A, AN/VVS-2(V)3 & AN/VVS-2(V)4. The Driver's Viewers are self-contained night vision devices that improve night vision using available light from the night sky for a vehicle driver. The area viewed is presented as a green image display. It is lightweight enough to be installed from within the vehicle and can be manually rotated from between 30° to 45° depending on the vehicle in which it is to be mounted.

CECOM Bottom Line: THE WARFIGHTER

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AN/VVS-2(V) Systems Buy



❑Objective: To award a production contract for four versions of the AN/VVS-2 Driver's Night Viewer.

❑Contract Type: IDIQ, 5 years

❑Estimated Value: \$3.5M-\$50M

❑Key Milestones: Solicitation release: April 2005
Award: July 2005


❑Technical Contact: Susan Weir, 732-427-5722

❑Acquisition Contact: Jo-Ann Lee, 732-532-2315


❑Solicitation #: TBD


CECOM Bottom Line: THE WARFIGHTER

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Spare Parts for the AN/VVS-2






CECOM Bottom Line: THE WARFIGHTER

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Spare Parts for the AN/VVS-2




- The AN/VVS-2 Driver's Viewer enables a closed-hatch vehicle to be driven during night time conditions without active illumination.
- The Driver's viewer is a through-the-hull/hatch night periscope for armored vehicles.
- 5 spare parts being purchased are Objective Lens Assembly, 2 different Mount Housing Assemblies, Plate Assembly, and Eyepiece Lens Assembly.

CECOM Bottom Line: THE WARFIGHTER

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Spare Parts for the AN/VVS-2



☐ Objective: To award a contract for production of five spare parts required for the Driver's Night Vision Viewer, AN/VVS-2.

☐ Contract Type: IDIQ, 5 years

☐ Estimated Value: \$3.65M-\$43.8M

☐ Key Milestones: IFB: April 2004
Award: July 2004


☐ Technical Contact: Susan Weir, 732-427-5722

☐ Acquisition Contact: Jo-Ann Lee, 732-532-2315


☐ Solicitation #: W15P7T-04-R-L210



CECOM Bottom Line: THE WARFIGHTER

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Night Vision Spare Parts




CECOM Bottom Line: THE WARFIGHTER
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Night Vision Spare Parts



- Gen III I² spares will sustain the U.S. Armed Force's ability to perform tasks at night with an efficiency approaching that under daylight conditions.
- The Gen III I² spares support passive devices, which amplify available light.
- 33 spare parts (including tubes) to be purchased include parts for AN/AVS-6(V)1A, (V)1B, (V)3Aviator's Night Vision Imaging Systems (ANVIS), AN/PVS-7A, B & D Night Vision Goggles, and AN/PVS-14 Monocular Night Vision Device (MNVD).
- Gen III 25mm Image Intensifier Tubes, MX-11619 and MX-11620 are also being purchased which are parts for AN/VVS-2 Drivers Night Vision Viewer, AN-PVS-4 Individual Served Weapon Night Vision Sight, and AN-TVS-5 Crew Served Weapon Night Vision Sight.

CECOM Bottom Line: THE WARFIGHTER
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Night Vision Spare Parts




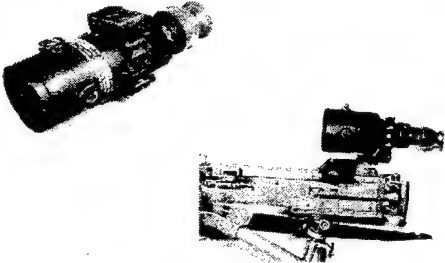
- ☐ Objective: To replace IDIQ contracts which have exceeded quantity thresholds
- ☐ Contract Type: Multiple BPAs, 5 years
- ☐ Estimated Value: \$10M - \$15M
- ☐ Key Milestones: Initial BPA Awards: May-July 04
Additional call orders will be placed thru FY09
- ☐ Technical Contact: Susan Weir, 732-427-5722
- ☐ Acquisition Contact: Deborah Gilligan, 732-532-5454
- ☐ Solicitation #: W15P7T-04-R-J204

CECOM Bottom Line: THE WARFIGHTER
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AN/PVS-4 and AN/TVS-5 Spares






CECOM Bottom Line: THE WARFIGHTER

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AN/PVS-4 and AN/TVS-5 Spares




- The AN/PVS-4 provides passive sighting and viewing of targets using second generation image intensifier techniques.
- When mounted on individual weapons, the scope will provide the capability for delivery of accurately aimed fire during hours of darkness.
- The system is easily installed and removed from the weapon using suitably designed brackets which require no modification to the weapon.
- AN/PVS-4 is primarily designed for use with the M14, M16 and M4 Rifles, M60 and M240B Machine Gun, M249 Squad Automatic Weapon, M72A1 Rocket Launcher and M203 Grenade Launcher, M4 Carbine and M240B Machine Gun. The sight can be used in the hand-held mode for night surveillance.
- AN/PVS-4 spare parts being purchased are the Objective Lens Assembly and the Eyepiece Lens Assembly.

CECOM Bottom Line: THE WARFIGHTER

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AN/PVS-4 and AN/TVS-5 Spares



- The AN/TVS-5 provides sighting and viewing of targets.
- When mounted on crew served weapons, the scope will provide the capability for delivery of accurately aimed fire during hours of darkness.
- AN/TVS-5 is primarily designed for use with the M2 and M60 Machine Gun and the 106mm Recoilless Rifle.
- The sight can be used in the handheld mode for night surveillance by individual soldiers, commanders and reconnaissance elements.
- Spare part being purchased is the Objective Lens Assembly.

CECOM Bottom Line: THE WARFIGHTER

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AN/PVS-4 and AN/TVS-5 Spares



□Objective: To award a small business contract for the Eyepiece Assembly for the AN/PVS-4 and Objective Lens Assemblies for the AN/PVS-4 and AN/TVS-5.

□Contract Type: IDIQ, 5 years

□Estimated Value: \$772K-\$4.85M

□Key Milestones: Solicitation release: 1Q FY05
Award: 2Q FY05

□Technical Contact: Daniel McClendon, 732-532-6241

□Acquisition Contact: Pat Kofron, 732-427-1484

□Solicitation #: TBD

CECOM Bottom Line: THE WARFIGHTER

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AN/PVS-7A and AN/PVS-10 Light Interference Filters (LIFs)



CECOM Bottom Line: THE WARFIGHTER

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AN/PVS-7A and AN/PVS-10 Light Interference Filters (LIFs)



- The AN/PVS-7 is a helmet - mounted image intensification system used by individual soldiers for night operations including such tasks as driving, walking, first-aid, map reading and maintenance.
- The system is designed for use in conjunction with rifle mounted aiming lights.
- Technology: Passive, Third Generation Image Intensification (18mm Image Intensifier Tube).

CECOM Bottom Line: THE WARFIGHTER

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AN/PVS-7A and AN/PVS-10 Light Interference Filters (LIFs)



- The AN/PVS-10 is an integrated day/night sight for the M24 sniper rifle that provides the sniper with the capability to acquire and engage targets under both day and night conditions.
- For nighttime operation, the system utilizes third generation image intensification technology.
- The system mounts to the existing rail of the M24 rifle and uses the standard mil-dot reticle.
- The LIF protects the user from eye injury and protects the image intensifier from damage from battlefield lasers.

CECOM Bottom Line: THE WARFIGHTER

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AN/PVS-7A and AN/PVS-10 Light Interference Filters (LIFs)



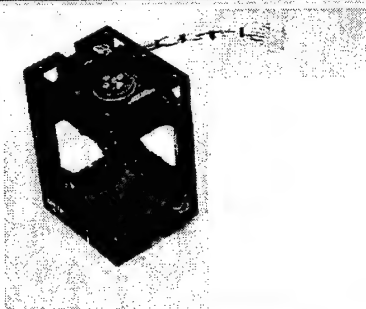
- ☐ Objective: To award a contract for production of two spare parts required for the AN/PVS-7A Night Vision Goggle & AN/PVS-10 Snipers Night Sight.
- ☐ Contract Type: IDIQ, 5 years
- ☐ Estimated Value: \$1M-\$3.7M
- ☐ Key Milestones: Solicitation release: 1Q FY05
Award: 2Q FY05
- ☐ Technical Contact: Susan Weir, 732-427-5772
- ☐ Acquisition Contact: Pat Kofron, 732-427-1484
- ☐ Solicitation #: TBD

CECOM Bottom Line: THE WARFIGHTER

Page # 32




Mechanical Scanner




CECOM Bottom Line: THE WARFIGHTER

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Mechanical Scanner



- The Mechanical Scanner is a subcomponent to 1st Generation Forward Looking Infrared Systems (FLIR).
- Utilizes a two-sided mirror to scan Infrared energy on one side and visible light on the opposite. There are several motors utilized to perform the scanning function as well as several transducers to assure proper interlacing of the images.
- There are several different versions/configurations of the scanner dedicated to various end item/platform requirements
- Must be fully operational in ambient temperatures of +71C and -54C.
- Must be able to withstand mechanical shock of 100G for a duration of 11 msec.

CECOM Bottom Line: THE WARFIGHTER

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Mechanical Scanner




- ☐ Objective: Maintain source of supply for Mechanical Scanners to meet Army requirements
- ☐ Contract Type: IDIQ, 5 years, Best Value
- ☐ Estimated Value: \$10M-\$20M
- ☐ Key Milestones: Solicitation release: 1Q FY05
Award: 2Q FY05
- ☐ Technical Contact: John Chiesa, 732-427-5804
- ☐ Acquisition Contact: Pat Kofron, 732-427-1484
- ☐ Solicitation #: TBD

CECOM Bottom Line: THE WARFIGHTER

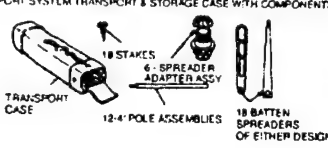
Page # 35



Arctic LCSS Support System



SUPPORT SYSTEM TRANSPORT & STORAGE CASE WITH COMPONENTS



TRANSPORT CASE 18 STAKES 6" SPREADER ADAPTER ASSY 12-4" POLE ASSEMBLIES 18 BATTEN SPREADERS OF EITHER DESIGN

CECOM Bottom Line: THE WARFIGHTER

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Arctic LCSS Support System




- Lightweight Camouflage Screen System (LCSS) is a legacy system, to be replaced by Arctic ULCANS in the FY 05 – 06 timeframe.
- Provides concealment from Visual, Near IR/Thermal and Radar sensors.
- The support system, snow (NSN:1080-01-256-0678) is white in color and is used with the snow, radar scattering or radar, transparent screen systems.
- The support system consists of:
 - Twelve each four foot aluminum (Type 1) pole sections.
 - Eighteen each aluminum stakes.
 - Eighteen each batten spreaders, which support the screens.
 - A locking device called a spreader adapter assembly.
 - A repair kit is furnished containing enough material for users to perform repairs on the screen.
 - A carrying case for the support system.

CECOM Bottom Line: THE WARFIGHTER

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Arctic LCSS Support System



□Objective: To fill requirements for Arctic LCSS Support Systems

□Contract Type: IDIQ, 5 years, Best Value

□Estimated Value: \$1.9M-\$2.1M

□Key Milestones: Solicitation release: 4Q FY04
Award: 1Q FY05


□Technical Contact: Troy Hayes, 732-427-5420

□Acquisition Contact: Pat Kofron, 732-427-1484


□Solicitation #: TBD

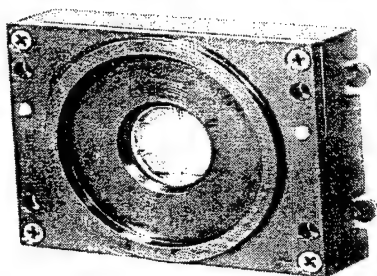
CECOM Bottom Line: THE WARFIGHTER

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Light Emitting Diode Arrays






CECOM Bottom Line: THE WARFIGHTER

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Light Emitting Diode Arrays




- The Light Emitting Diode Array is a subcomponent to the 1st Generation Forward Looking Infrared Systems (FLIR)
- Light Emitting Diode Arrays (LED) perform the function of Electrical to Optical conversion for use in FLIR Systems
- LEDs have several configurations dependent upon end item/platform requirements. There are 60 element (SU-127), 120 element (SU-122) and 180 element (SU-96) configurations
- LEDs must be fully operational in ambient temperatures of +71C and -54C
- LEDs must be able to withstand mechanical shock of 100G for a duration of 11 msec

CECOM Bottom Line: THE WARFIGHTER

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Light Emitting Diode Arrays




- ☐ Objective: Maintain Source of supply for Light Emitting Diode Arrays to meet Army requirements
- ☐ Contract Type: IDIQ, 5 years
- ☐ Estimated Value: \$5M-\$15M
- ☐ Key Milestones: Solicitation release: October 2004
Award: February 2005
- ☐ Technical Contact: John Chiesa, 732-427-5804
- ☐ Acquisition Contact: Pat Kofron, 732-427-1484
- ☐ Solicitation #: TBD

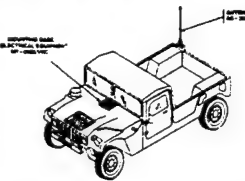
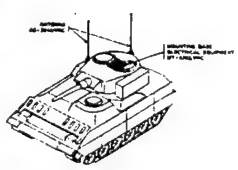
CECOM Bottom Line: THE WARFIGHTER

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AS-3900A and AS-3916 Antennas and Spares







CECOM Bottom Line: THE WARFIGHTER

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AS-3900A and AS-3916 Antennas and Spares




	AS-3900A	AS-3916
Description	9' bi-pole fiberglass whip antenna consisting of upper and lower element and base subassembly	6' mono pole steel whip attached to a base subassembly
Used with	SINGARS Ground Radios in wheeled vehicles	SINGARS Radios in tracked vehicles
Frequency	30-88 MHz range; frequency hopping capability	30-88 MHz
Range	Approx 22 miles	Approx 17 miles
Components/NSNs	Antenna 5985-01-353-4943 Base 5985-01-353-8696 Upper element 5985-01-306-4622 Lower element 5985-01-306-8110	Antenna 5985-01-353-4943 Base 5985-01-376-8012

CECOM Bottom Line: THE WARFIGHTER
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AS-3900A and AS-3916 Antennas and Spares



☐ **Objective:** To replace expiring contracts for the antennas and associated spare parts.

☐ **Contract Type:** IDIQ, 5 years, Best Value

☐ **Estimated Value:** \$30M-\$50M

☐ **Key Milestones:** Solicitation release: July 2004
Award: November 2004

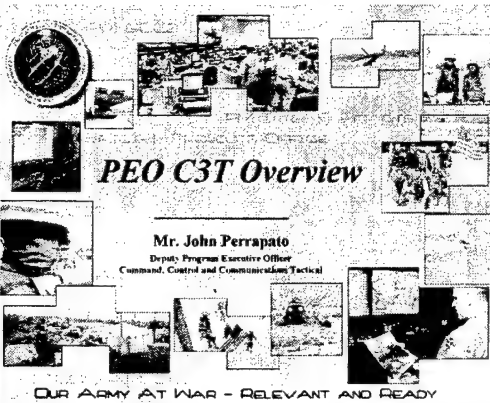
☐ **Technical Contact:** Man Bun Lau, 732-532-9177

☐ **Acquisition Contact:** Michael Neeb, 732-532-5512

☐ **Solicitation #:** W15P7T-04-R-G634

CECOM Bottom Line: THE WARFIGHTER
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PROJECT



PEO C3T Overview

Mr. John Perrapato
Deputy Program Executive Officer
Command, Control and Communications Tactical

OUR ARMY AT WAR - RELEVANT AND READY

PROJECT

Mission Statement

To rapidly develop, field, and support leading edge, survivable, secure and interoperable tactical, theater, and strategic command and control and communications systems through an iterative, spiral development process that results in the right systems, at the right time and at the best value to the warfighter.

"System Architect for Tactical Army"

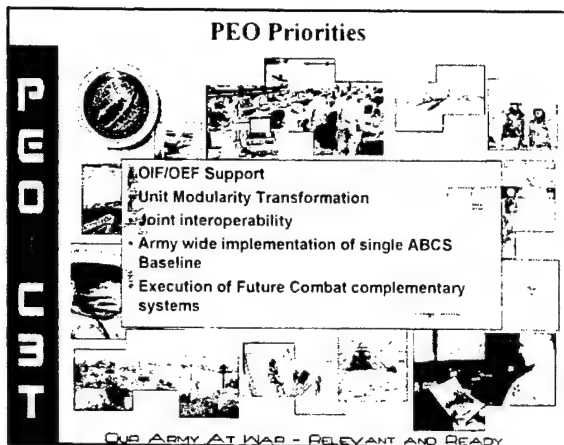
OUR ARMY AT WAR - RELEVANT AND READY

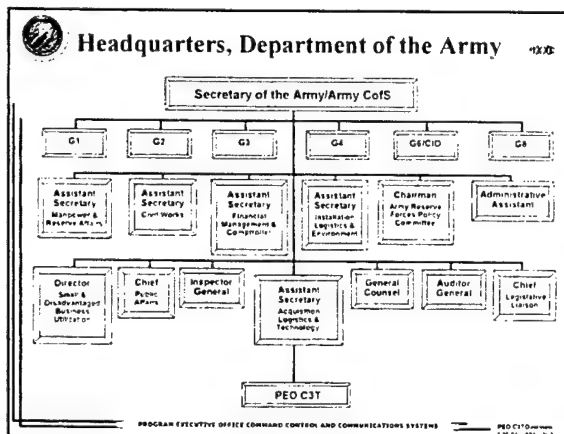
PROJECT

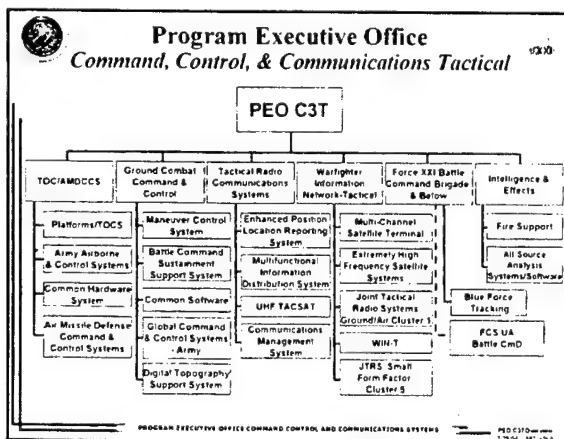
Vision Statement

To be the premier provider of integrated C3 solutions to the Joint Warfighter while supporting transformation of the collective force. PEO C3T has evolved as the "C3 Expert" and is dedicated to providing information superiority to the Warfighter and Homeland Defense. We provide the right system, at the right time and at the best value.


OUR ARMY AT WAR - RELEVANT AND READY







Warfighter Information Network-Tactical
WIN-T

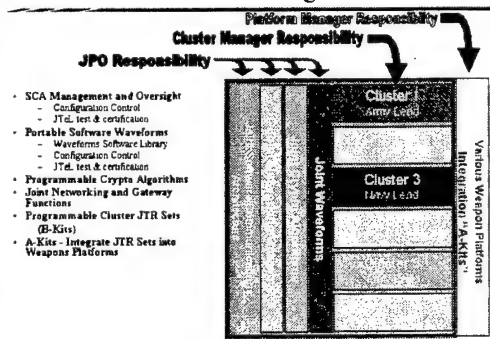


Advance Planning Brief for Industry
Joint Tactical Radio System; Cluster 1
Mr. Graciano Nikolich, JTRS C1 Systems Engineer
732-427-3989

Agenda

- JTRS C1 Program Overview
- Program Schedule
- Program Requirements
- Technical Challenges
- Summary
- Take-Aways

JTRS Program



JPO Responsibility

- SCA Management and Oversight
 - Configuration Control
 - JTR test & certification
- Portable Software Waveforms
 - Waveforms Software Library
 - Configuration Control
 - JTR test & certification
- Programmable Crypto Algorithms
- Joint Networking and Gateway Functions
- Programmable Cluster JTR Sets (B-Kits)
- A-Kit - Integrate JTR Sets into Weapon Platforms

Platform Manager Responsibility

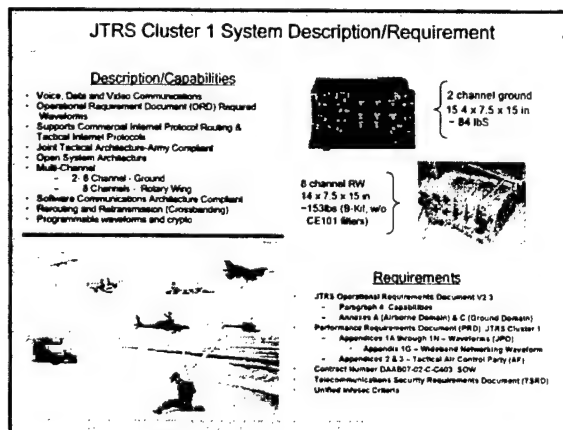
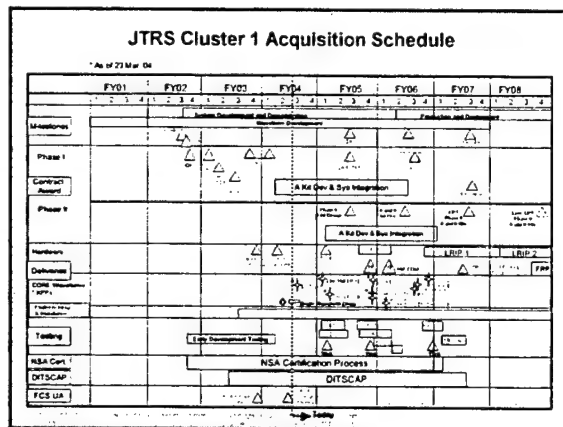
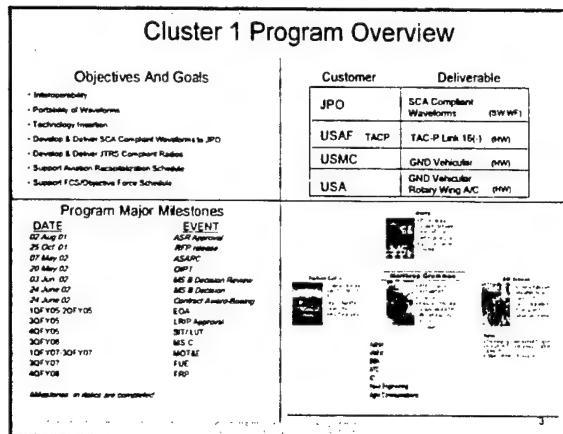
Cluster Manager Responsibility

Joint Waveforms

Cluster 1 Army Lead

Cluster 3 Army Lead

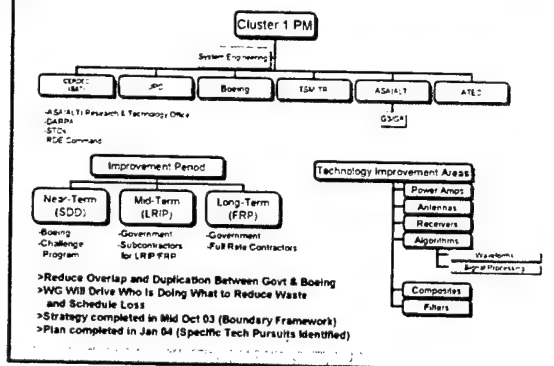
Various Weapon Platforms Integration "A-Kits"



Technical Challenges

- Power Dissipation
- Requirements that significantly impacted Size/Weight/Power (SWaP)
 - Flexibility to run any waveform in any channel
 - Multiple Single Level Security (MSLS)
 - Software Communications Architecture (SCA)
 - Universal wideband amplifiers
- Industrial grade components require more cooling
- CE-101 not waived for Rotary Wing JTRS added 60 lbs
- Wide band antenna performance

Technology Development Strategy Working Group



Technology Development Strategy (TDS)

- Seize earliest opportunities for mature, improved, affordable and reliable WNW supporting DA, Antenna and Fiber technology insertion to Cluster 1 in all Phases while simultaneously maintaining the current program progress with recognized technology shortfalls
- Demonstrate incremental improvement by using phased approach to mitigate and avoid unnecessary programmatic risk and cost
- Leverage and influence DoD and Army R&D programs such as STOs and ATDs
STO: CER DS Radio Enabling Technologies & Networking Applications (RETHA)
- Assess Technology and affordability through BAAs and SBIRs

Initiated Efforts via CERDEC S&TCD Broad Agency Announcements

- Mid-High Power amplifier (MHPA): BAA Solicitation DAAB07-03-R-P650, Topic # S0404 "Software Defined Radio"
- Antenna for Mid-High Band: BAA Solicitation DAAB07-03-R-P650, Topic # S0405 "Antennas for Tactical and Strategic Military Communications"
- Schedule: Awards Made Mar-April 04
- Continue pursuit of additional technologies

Take-Aways

- TDS supports BAAs
- BAAs must provide usable products
- CERDEC developing a STO to support TDS
- Strong focus on third party development
 - Emphasis on expansion of the industrial base
- Strong focus on tech insertion
- Two points of entry
 - Cluster 1 TDS Working Group (PM JTRS C1 lead)
 - RETNA STO (CERDEC lead)

US Army Research, Development and Engineering Command

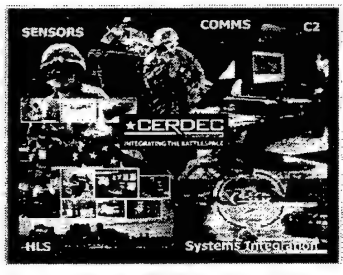
**Communications-Electronics Research,
Development and Engineering Center
(CERDEC)**

Robert Zanzalari
Acting Associate Technical Director
732-427-3351
Robert.Zanzalari@us.army.mil

CERDEC Technology to the Warfighter Quicker **RDE**

US Army Research, Development and Engineering Command

**Communications-Electronics Research,
Development and Engineering Center**



Mission
To develop and integrate
Command, Control,
Communications, Computers,
Intelligence, Surveillance,
Reconnaissance (C4ISR)
Technologies that enable
Information Dominance and
Decisive Lethality for the
Networked Warfighter

Vision
To be the DoD leader
in C4ISR solutions

CERDEC Technology to the Warfighter Quicker **RDE**

US Army Research, Development and Engineering Command

CERDEC

OFFICE OF THE DIRECTOR
Director - Gary Martin (Acting)
Associate Director for Technology - Bob Zanzalari (Acting)
Military Deputy Director / CIO - COL Angel Colon
Chief Scientist - Dr. Art Ballato
Executive Officer - Roseann Ellison

**Homeland Security
Special Projects Office**
(HLS SPO)
Tony Anania
Director

**COCOM Interoperability
Program Office**
(CIPRO)
John Silato
Director (A)

Directorates

Command & Control Darrell Davis (A) <ul style="list-style-type: none"> Advanced C2 Systems Integration of C2 Inter. & Link Databases Planning & Decision Making Tools Battlefield Visualization Navigation Power Generation & Management 	Space & Terrestrial Comm. Gary Blohm <ul style="list-style-type: none"> Tactical On-The-Move Communications Information Security Reachback/Range Extension (SATCOM & UAV) Satellite Communications Network Management 	Night Vision Electronic Sensors A. Fenner Milton <ul style="list-style-type: none"> Thermal Imaging Image Intensification/Charge Coupled Devices Sensor Fusion Active Target Recognition Laser/Laser Radar Countermeasures 	Intelligence & Information Warfare Anthony Lisuzzo <ul style="list-style-type: none"> Intelligence Data Fusion/Determination Signal Intelligence & Electronic Support Information Warfare Tactical UAV Reconnaissance Survivability Equipment 	Software Engineering Mike Lombardi (A) <ul style="list-style-type: none"> Engineering Support and Services for PDS and PDS Software Development
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CERDEC Technology to the Warfighter Quicker **RDE**

US Army Research, Development and Engineering Command

Maneuver Support



Purpose: Provide the Ability to Detect, Neutralize and Digitally Disseminate Mine and Minefield Locations

Products: Detection Sensors, Software Algorithms, and Neutralization Techniques to Support Rate of Advance and Maneuverability Requirements on and Off-road


Payoff: Increased Vehicle and Soldier Survivability Provides Increases in Rates-of-advance for Route Clearance and Minefield Reconnaissance Missions Provides Bolt-on Operations Without Overpass Avoiding the Need for Specialized Vehicles

Value: \$25.2M (FY04)/\$90.3M (FY05-09)

CERDEC Technology to the Warfighter Quicker **RDE**

US Army Research, Development and Engineering Command

Maneuver Sustainment



Purpose: This Chunk Will Provide Means to Manage the Transportation and Sustainment of Personnel and Materiel in Order to Support High OPTEMPO and Ready to Fight Requirements.

Products: Planning Tools for COA Analysis of Classes III, V, Maintenance, and Medical Service; Software Intelligent Agents for Execution Monitoring and Counteraction Recommendation; Sustainment Focused Computer Based Training Tools.

Payoff: Sustainment Analysis and Planning Integrated and Concurrent With Maneuver COA Generation.


STO(s) Supporting: IV.LG.2003.01

Value: \$13.4M (FY05-06)

CERDEC Technology to the Warfighter Quicker **RDE**

US Army Research, Development and Engineering Command

Mounted/Dismounted Maneuver



Purpose: This Chunk Will Provide the Objective Force Unsurpassed Mobility Over Operational Distances As an Integrated Combined Arms Unit. This Capability Is Necessary If Objective Force Commanders Are to Maneuver Where and When They Desire, Without Interruption or Delay in Intent.

Products: Multi-spectral AITD and MWIR AITD/AIR System for Evaluation in a Field Demo; Demonstration and Validation of Both Operational and Training Pos/Nav & Tracking Breadboards in a MOUT Environment

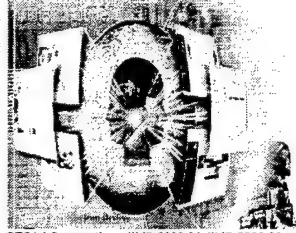
Payoff: Superior Tactical Maneuverability in All Terrain and Weather As a Dismounted and Mounted Combined Arms Force.

Value: \$70.3M (FY04)/\$256.8M (FY05-09)

CERDEC Technology to the Warfighter Quicker **RDE**

US Army Research, Development and Engineering Command

Sensor Fusion



Purpose: Provide Multi-spectral, Multi-discipline Sensors and Fusion Tools Required to Understand the Enemy Situation and the Battlespace Environment As Required for the Unit of Action.

Products: Software for Knowledge Generation and Explanation to Answer Warfighting CCIR's in a Timely Manner; Ontology Based Information Agents for Objective Force Systems (FCS, DCGS-A, C2 Systems); Battle Damage Assessment Agents, and User-directed Knowledge Discovery Tools

Payoff: The Ability to Make Quick War-fighting Decisions After Having Fully Leveraged the Huge Volumes of Information That the UoA Will Receive.

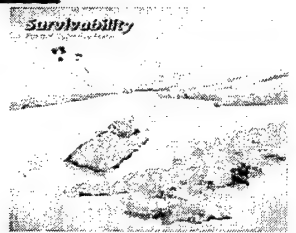
STO(s) Supporting: III.IS.2002.01, III.IS.2003.06, III.BA.2003.01

Value: \$12.6M (FY04) /\$117M (FY05-09)

CERDEC Technology to the Warfighter Quicker **RDE**

US Army Research, Development and Engineering Command

Survivability



Purpose: Provide the Warfighter Affordable Aircraft and Ground Electronic Sensors and Systems Which Enhance Survivability and Lethality Through the Development of Technology to Avoid Acquisition and Avoid Being Hit.

Products: Warning Sensors to Cue EW and APS Countermeasure Systems; Electronic Countermeasure Systems and Techniques to Neutralize Smart Munitions; Detection, Location, Identification, Jamming and Deception of Enemy Battlefield Surveillance and Targeting Radar Systems.

Payoff: Survivability and Information Dominance Through Degradation, Denial, and Deception of Enemy Sensors and Remotely Controlled Weapon Systems

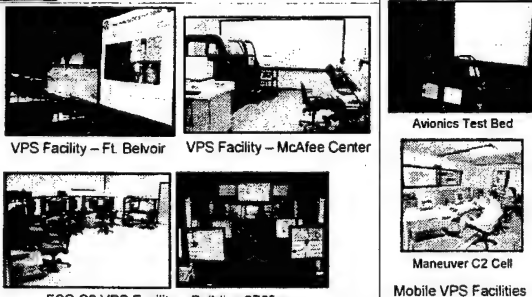
STO(s) Supporting: IV.EW.2000.01, III.IS.2003.01, IV.SN.2003.01

Value: \$10.9M (FY04) /\$5.3M (FY05-09)

CERDEC Technology to the Warfighter Quicker **RDE**

US Army Research, Development and Engineering Command

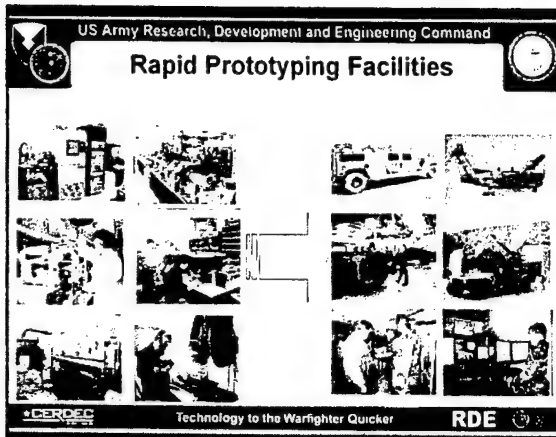
Virtual Prototyping

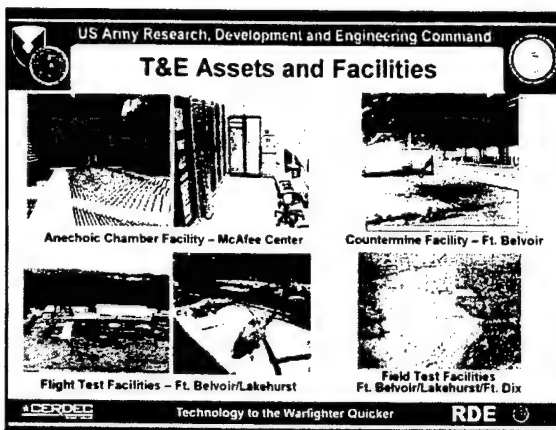


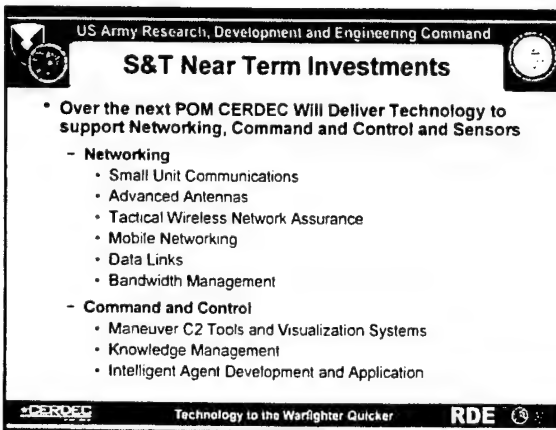
VPS Facility – Ft. Belvoir VPS Facility – McAfee Center Avionics Test Bed


FCS C2 VPS Facility – Building 2705 Maneuver C2 Cell Mobile VPS Facilities

CERDEC Technology to the Warfighter Quicker **RDE**












US Army Research, Development and Engineering Command



S&T Near Term Investments

- Sensors**
 - Second Generation Unattended Ground Sensors
 - Distributed Aided Target Recognition
 - Advanced Soldier Vision Systems
 - Low Cost, Un-cooled Sensors
 - Thru Wall Sensing
 - Multi-mission Radar
 - Long Range SAR/MTI
 - Digital RF Tags
- Countermeasures**
 - Countermine and Counter IED


Technology to the Warfighter Quicker




US Army Research, Development and Engineering Command



CERDEC Contract Opportunities

- Specific Business Area Opportunities**
 - Space & Terrestrial Communications Dir.
 - Command & Control Dir.
 - Night Vision & Electronics Sensor Dir.
 - Intelligence & Information Warfare Dir.
- CERDEC Wide Opportunity**
 - Small Business Innovation Research


Technology to the Warfighter Quicker




US Army Research, Development and Engineering Command



Wearable Antenna Integration

DEFINITION

- Apply wearable antenna prototypes to useable ensembles for dismounted soldier operational scenarios.
- Existing prototypes to integrate into existing and/or projected soldier ensembles.
- Characterization of the antenna transmit/receive properties after integration efforts.
- Testing to transmit and receive voice, data and video under operational scenarios may be included to determine actual properties (e.g., gain, bandwidth, etc.)

TECHNICAL SPECIFICATIONS

- Frequency Range: 30-2500 MHz
- Inputs: RF and JTRS Control Input
- "Soldier Radio" compatible
- RF Input Power: 55 Watts
- Form Factor: Various/Scorpion Ensemble

CONTRACT OPPORTUNITY

OBJECTIVE: Integrate antenna prototypes into soldier ensemble

CONTRACT TYPE: Cost Plus

ESTIMATED VALUE: \$300k-700k

KEY MILESTONES: BAARFP Released 4Q FY04
Contract Award 2Q FY05
Delivery: 2Q FY07

TECHNICAL CONTACT: Dr. John M. Tobias (732) 427-0221
ACQUISITION CONTACT: Kristina Weaver, (732) 427-1381
SOLICITATION #: BAA DAA807-03-R-P650, topic #S0405

**TECHNICAL CHALLENGES
NEEDING MITIGATION**

- Interference from ensembles
- Characterization difficulties
- Variable platform (soldier)
- Multiple antennas


Technology to the Warfighter Quicker


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US Army Research, Development and Engineering Command

Network Enabled Battle Command (NEBC)

C2 Services for GCC through Div/UE Echelons

Knowledge Management Decision Aids Warfighter Machine Interface Automated Assistance to C2M Staff

PLAN Adjustments Decisions Progress

Automated Reasoning Visualization

Dynamic Task Set Info Push Pull

NCES SOSCOE Terabytes of Dynamic Army/Coalition COP Data

Technology to the Warfighter Quicker RDE

US Army Research, Development and Engineering Command

Network Enabled Battle Command (NEBC)

DEFINITION

This program will develop and demonstrate Command and Control (C2) software services and applications that support the Army's definition and development of the Future Force Unit of Employment (UE) Battle Command capability. In addition, near-term capabilities that address Current Force needs will be integrated into the Army Battle Command System - Good Enough (ABCS-GE). Focus areas include knowledge management, decision support and visualization services. These capabilities will allow for accelerated and improved decision making, increased operational tempo, and enhanced Army/Coalition C2.

CONTRACT OPPORTUNITY

OBJECTIVE: Develop and commercial C2 software services and applications that support the Army's definition and development of the Future Force UE Battle Command capability. Near-term capabilities that address Current Force needs will be integrated into ABCS-GE. Focus areas include knowledge management, decision support and visualization services.

CONTRACT TYPE: BAA expected to be released late fall 2004

ESTIMATED VALUE: Anticipated multi-awards each fiscal year ranging from approximately \$400K to \$1M

KEY MILESTONES:

- 2002 Software transition to ABCS-GE and TRADOC Future Force demonstration
- 2004 Software enhancements to ABCS-GE and TRADOC Future Force demonstration applications
- 2007 Software services transition to JCC
- 2008 Software enhancements to JCC demonstration of NCES/SOSCOE enabled

TECHNICAL CONTACT: Ken Baum, STO Manager, (703) 437-3728

ACQUISITION CONTACT: Andrea Shalaby, (703) 437-3351

TECHNICAL SPECIFICATIONS

- Supports Current Force needs by supporting the integration of "new hanging fruit" into ABCS-GE releases to Coalition Army Freedom (CAF).
- Supports Training and Doctrine Command (TRADOC) Unit of Action (UA) and UE Concept Development by providing C2 applications to support federated experimentation.
- Supports the development of the Joint Command and Control (JCC) system for Current force and UE Battle Command and by maturing and integrating technologies for Joint/Coalition knowledge management services, decision support services, and visualization services.
- Addresses the risk areas of Network Centric Enterprise Services (NCES) and System of System Common Operating Environment (SOSCOE) integration to help ensure seamless operations between UE and UA.

TECHNICAL CHALLENGES

NEEDING MITIGATION

- Limited bandwidth availability in tactical environment
- Net-Centric C2 services, predictive analysis tools, and Intelligent Agent technology base is immature
- Aggressive delivery/demonstration schedule

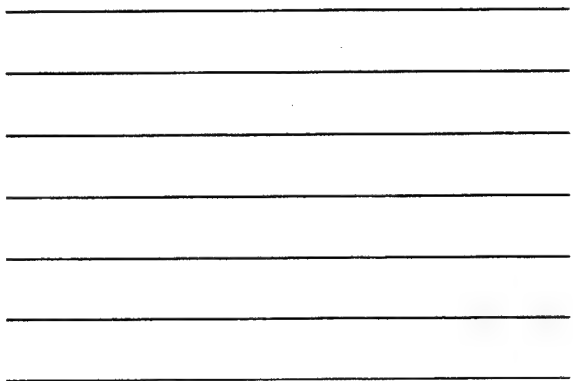
Technology to the Warfighter Quicker RDE

US Army Research, Development and Engineering Command

Future Force Power Systems

Technology to the Warfighter Quicker RDE

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US Army Research, Development and Engineering Command

Fusion Supporting Multi-INT ISR

DEFINITION

- Develop an all-source information fusion architecture for integrating information from multiple intelligence sources including imagery and non-imagery data.
- Design, develop, test and demonstrate the Fusion of of ISR sensor data.

CONTRACT OPPORTUNITY

- OBJECTIVE:** To develop an advanced knowledge generation and explanation capability to answer the war fighting commander's priority intelligence requirements (PIR) thereby enabling the force to see and understand at a rate supporting tactical agility concepts of the Objective Force
- CONTRACT TYPE:** Fixed Price
- ESTIMATED VALUE:** \$7M (FY 06-FY 08)
- KEY MILESTONES:** Post-ale RFP in 01/06
- TECHNICAL CONTACT:** Hal Phu, (732) 427-5604
- ACQUISITION CONTACT:** Kristina Weaver, (732) 427-1381
- SOLICITATION # or RFQ #:** TBD

TECHNICAL SPECIFICATIONS

- Specific applications include Fusion-Based Knowledge for the Future Force, Eye in the Sky, Distributed Common Ground Station, and Horizontal Fusion.
- Level 2 or higher fusion.
- Directly supporting the Unit of Action environment.

TECHNICAL CHALLENGES NEEDING MITIGATION

- Level 2 and higher Information fusion
- Automation of fusion processes
- Lack of fusion Infrastructure Support
- Lack of satisfactory underlying Theory

CERDEC Technology to the Warfighter Quicker **RDE**

US Army Research, Development and Engineering Command

I2WD BAA

DEFINITION

The Intelligence and Information Warfare Directorate Broad Agency Announcement (BAA) is an expression of interest only.

The BAA DOES NOT COMMIT the government to make an award, or pay preparation costs, generated in response to it.

CONTRACT OPPORTUNITY

- OBJECTIVE:** Streamline Contracting Vehicles Supporting I2WD Technical Requirements
- CONTRACT TYPE:** Cost-Plus-Fixed-Fee
- ESTIMATED VALUE:** No Dollar Value Limit
- KEY MILESTONES:** 1 October 2004 Award Date
- TECHNICAL CONTACT:** Steven Wzlar, (732) 427-4091
- ACQUISITION CONTACT:** Mary Paterno-Mhaliko, (732) 532-3992
- SOLICITATION # or RFQ #:** TBD

TECHNICAL SPECIFICATIONS

- RF Propagation techniques for Signal Intelligence
- Signals Intelligence for Conventional Analog/Digital Signals and low probability of Intercept Signals
- Signals Intelligence for Modern Signals
- Multiple Intelligence
- Signals Intelligence for Electronic Intelligence
- Measurement & Signature Intelligence
- Electronic Warfare
- Computer Network Operations
- Language Translation
- Information Operations - Pacing Technologies
- Information Operations - Attack Intelligence, Surveillance & Reconnaissance Technologies
- Command & Control Protect
- Network Vulnerability
- CASR Penetration testing & Vulnerability Analysis
- Combat Identification
- Unattended Sensors

TECHNICAL CHALLENGES NEEDING MITIGATION

- Provide innovative technology solutions to emerging technical challenges
- Ability to provide timely solutions that are cost effective
- Contractors to provide to the government clear, concise proposals that address our technology requirements/shortfalls

CERDEC Technology to the Warfighter Quicker **RDE**

US Army Research, Development and Engineering Command

SMALL BUSINESS INNOVATION RESEARCH (SBIR)

SMALL BUSINESS INNOVATION RESEARCH

FY04 PROGRAM

Phase I

- 44 Topics published in the DoD 03.2 Program Solicitation
- 854 Phase I Proposals were submitted against topics
- 82 Phase I Proposals were selected for award
- 7% of all proposals submitted
- 41 Phase II Proposals were awarded this year
- 63% of all Phase I proposals awarded
- Since inception in 1995, CERDEC has won 9 annual Phase II Quality Awards

Phase II

- R&D 2 Year
- NTI \$750,000
- Phase II Prop
- 1 Year - \$250,000
- Marketing

Phase III

- Commercialization
- Contract to States
- Funding from Small Business

CONTRACT OPPORTUNITY

- OBJECTIVE:** To stimulate technological innovation, strengthen role of small business in DoD R&D needs, foster & encourage participation by minority/disadvantaged persons, increase commercial application of DoD supported research in R&D results
- CONTRACT TYPE:** Firm Fixed Price (FFP)
- ESTIMATED VALUE:** \$5,000
- KEY MILESTONES:** (Phase I) Pre-Solicitation 3 May 2004, Solicitation Opens 1 July 2004, Solicitation Closes 12 August 2004, Contract Award 13 December 2004
- PROGRAM CONTACT:** Suzanne Weeks, (732) 427-3275
- ACQUISITION CONTACT:** Robert Calaver, (732) 532-5362

PHASE II SUCCESS STORY

Automated Intelligence Analysis Tool
Austin Info Systems

Impact:

- Selected to provide the Situation Understanding Package for the Future Combat Systems for an estimated \$316
- Selected as one of Austin, Texas 50 fastest growing small businesses for last consecutive years
- Produced a commercially available intelligent search & retrieval tool known as Open Source Automated Link Analysis Tool (OSALAT)
- Provides an intelligent search agent to find relevant documents, organizes results, supports gathering info from external sources, extracts info, reports in plain & text reports, and contributes to decision-making at all

CERDEC Technology to the Warfighter Quicker **RDE**



PEO EIS Contract Opportunities

Art Reiff
Deputy Project Manager
Defense Communications and Army Transmission Systems (DCATS)
Arthur.Reiff@us.army.mil
(732)532-5517, DSN 992-5517
DD MMM 2004



PEO EIS

Outline

- PEO EIS Overview
- PM DCATS Mission
- Contract Opportunities
 - Multiband Enterprise Terminal
 - DoD Standard SATCOM Internet Protocol (IP) Modem

PEO EIS

We are PEO Enterprise Information Systems

- Provide DoD, the Army and other federal agencies with network-centric knowledge-based business and combat service support solutions.
- Implement Army's Enterprise infrastructure & business systems which support Combatant Commanders
- Provide Automated Systems which:
 - Assist with the accession and training of our Soldiers,
 - Track the Army's personnel
 - Provide and maintain the Warfighter's equipment
 - Plan the movement of their supplies and assets.



PEO EIS

[illegible]

Project Mgr. Defense Communications and Army Transmission Systems (PM DCATS)

Implements the Army's enterprise infrastructure which supports the Combatant Commander's joint warfighters and MACOMs through the acquisition and fielding of worldwide strategic, wideband, satellite, ground systems, long haul terrestrial, microwave, communication systems, base radio systems and combat vehicle intercom systems, and by the relocation and upgrading of technical control facilities, command centers and deployed forces infrastructure.

Satellite Communications Control Systems

Satellite Baseband Systems

Satellite Terminals

Terrestrial Transmission Systems

Technical Control Facilities

CBG SATCOM

Vehicle Intercom System

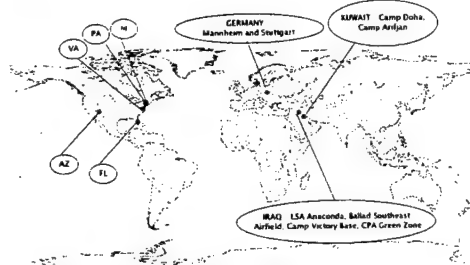
CA/3I

Base Radio Systems

Command Center Upgrades

Kuwart to 3rd CA Commanders' Liaison

PM DCATS Program Offices



Core Employees - 76 Civilians, 9 Military
PM DCATS Team (Core, Matrix, Contractor) - 362

PE EIS

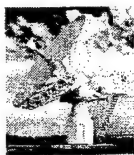
Army/PM DCATS' Enterprise Earth Terminals

1977-2010



AN/FSC-78 & GSC-39
(X-Band)

1985-2015



AN/GSC-52
(X-Band)

2004-2020



KaSTARS (Ka-Band)



Teleport (C & Ku-Band)

PE EIS

Army/PM DCATS' Earth Terminal Baseband

1977-2020



Digital Communications Satellite Subsystem

STEP FUNCTIONAL DIAGRAM

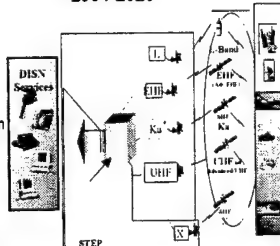


Standardized Tactical Entry Point (STEP)

1995-2010

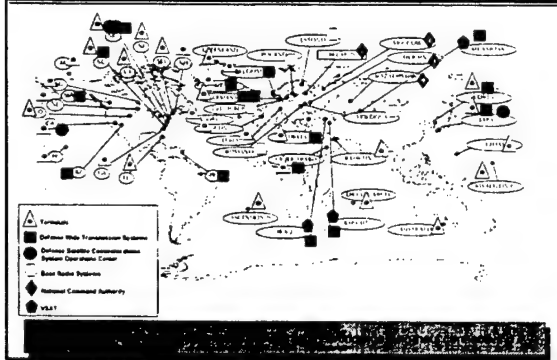
PE EIS

2004-2020



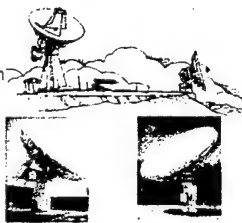
Teleport Baseband

PM DCATS Worldwide Mission



Multiband Enterprise Terminal (MET)

- V(1) - X/Ka Band
- V(2) - Ka/EHF Band
- Supports Internet Protocol (IP) and Dedicated Circuits
- Capable of High Speed Interconnectivity to Global Information Grid (GIG)
- Critical Reachback Capability for the Warfighter



PE EIS

MET Risk Mitigation Phase

- FY06 - FY08
- Low Cost Component Development and Experimentation
- Risk Mitigation Candidates
 - Simultaneous X/Ka Band
 - Antenna Feed Horn
 - Frequency Converters
 - Solid State Power Amplifiers
 - JTRS/SCA Compliance
 - Modern Waveform Developed by Joint Tactical Community
 - Ported to any SATCOM System General Purpose Processor
 - All Digital SATCOM Receiver
 - Remote Control - Minimize Need for Operator

PE EIS

MET Full Rate Production Phase

- FY09 – FY20
- V(1) X/Ka Band
 - Supports Wideband Gapfiller Satellite Constellation
 - Replace FSC-78, GSC-39, GSC-52, KaSTARS at end of life
- V(2) EHF/Ka Band
 - Teleport for Transformational Satellite Constellation
- Contract Requirements
 - Prototype
 - Test
 - Production Quantity – 79 Terminals
 - Install 8 – 10 per year
 - Spares
 - Contractor Depot

PE EIS

Multiband Enterprise Terminal (MET)

- OBJECTIVE: Develop and Procure X/Ka & Ka/EHF SATCOM Earth Terminals
- CONTRACT TYPE: TBD
- Risk Mitigation Phase
 - FY05-08
 - Contract Value - \$4-8M
- Full Production Phase:
 - FY09-FY20
 - Contract Value - \$100 - \$300M
- TECHNICAL CONTACT: Art Reiff, (732) 532-5517
- ACQUISITION CONTACT: TBD
- SOLICITATION # or RFQ #: TBD

PE EIS

DoD Standard IP Modem

- Provide Standard Internet Protocol (IP) based Bandwidth on Demand Capability for Wideband MILSATCOM
 - Efficient use of Satellite Bandwidth
 - Mesh and/or Hub-Spoke Topology
- OSD/DISA Publishing a Transponder SATCOM IP Modem Functional Requirements Document - June 2004



PE EIS

PM DCATS Proposed Procurement Approach

■ One Contract, Three Phases

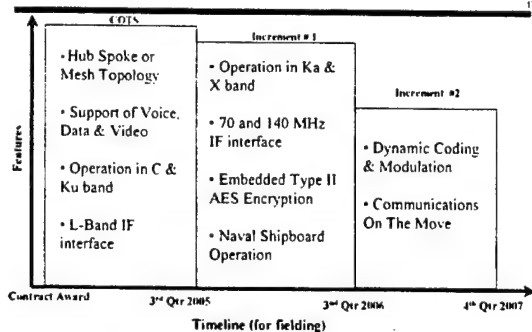
- Phase I – Purchase Commercial off the Shelf (COTS) Units
- Phase II – Engineer and Upgrade COTS Units with Increment #1 Capability (Minimum DoD Standard Features)
- Phase III – Engineer and Upgrade Units with Increment #2 Capability (Full DoD Standard Features)

■ DoD Benefits

- Quick procurement that satisfies user needs
- Cost effective & early implementation
- Interoperability – DoD Std. Modem
- A solution that meets the requirements of the community

PE EIS

Proposed IP Modem Roadmap



PE EIS

DoD Standard IP Modem

- OBJECTIVE: Procure Commercial Off-the-Shelf IP Modem and Control System Capable of Upgrade to DoD Standard
- CONTRACT TYPE: Firm Fixed Price, with T&M
- Contract Value - \$20-50M
- Major Milestones:
 - Contract Award – May 2005
 - COTS Fielding – Aug 2005
 - DoD Standard Modem Increment #1 Fielding - 2006
 - DoD Standard Modem Increment #2 Fielding - 2007
- TECHNICAL CONTACT: Art Reiff, (732) 532-5517
- ACQUISITION CONTACT: Susan Stroud, (732) 532-1109
- SOLICITATION # or RFQ #: TBD

PE EIS

PEO EIS Contract Opportunities




- Art Reiff
- PEO EIS, PM DCATS, Deputy Project Manager
- Phone: (732)532-5517
- Email: Arthur.Reiff@us.army.mil
- PEO EIS Web Page: <http://www.eis.army.mil>


PEO EIS

GUEST SPEAKER

MAJOR GENERAL MARILYN A. QUAGLIOTTI

**VICE DIRECTOR
DEFENSE INFORMATION SYSTEMS AGENCY**



Total Engineering and Integration Services (TEIS) Recompete


Craig Engel
 USAISEC Critical Skills Expert
 (520) 538-3172
 Craig.Engel1@us.army.mil

CECOM Bottom Line: THE WARFIGHTER

1




Total Engineering and Integration Services (TEIS) Recompete



DEFINITION

Information systems engineering and information technology support services to USAISEC and other federal agencies worldwide. The services will include engineering related activities in support of all aspects of information and communication systems. Support will be required for the full life cycle of USAISEC projects to include planning, design, development, engineering, implementation, procurement, logistics, evaluation, sustainment and ancillary services.

CECOM Bottom Line: THE WARFIGHTER

2




Total Engineering and Integration Services (TEIS) Recompete


CHARACTERISTICS


- Indefinite Delivery Indefinite Quantity
- Firm Fixed Price Labor Categories
- Cost Reimbursable Line Items
- Performance Based Attributes
- CONUS and OCONUS Performance

CECOM Bottom Line: THE WARFIGHTER

3



**Total Engineering and Integration
Services (TEIS) Recompete**




STATUS/PROGRAM DIRECTION

KEY MILESTONES:


- Draft RFP Released on the IBOP April 2, 2004
- Pre-Solicitation Conference Held April 23, 2004
- Final RFP Anticipated October 4, 2004
- Anticipated Award January 31, 2005

CECOM Bottom Line: THE WARFIGHTER

4



**Total Engineering and Integration
Services (TEIS) Recompete**




CHALLENGES


- RECRUITMENT AND RETENTION OF LABOR
- USAISEC'S CHANGING MISSION
- ORGANIZATIONAL CONFLICT OF INTEREST

CECOM Bottom Line: THE WARFIGHTER

5



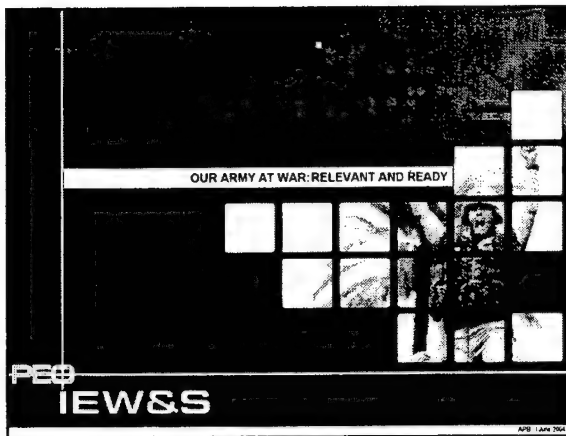
**Total Engineering and Integration
Services (TEIS) Recompete**

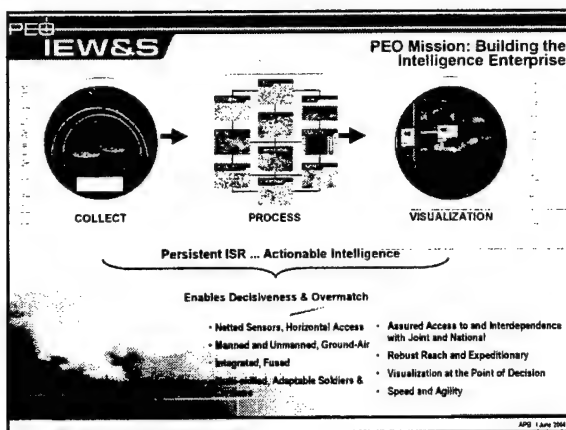


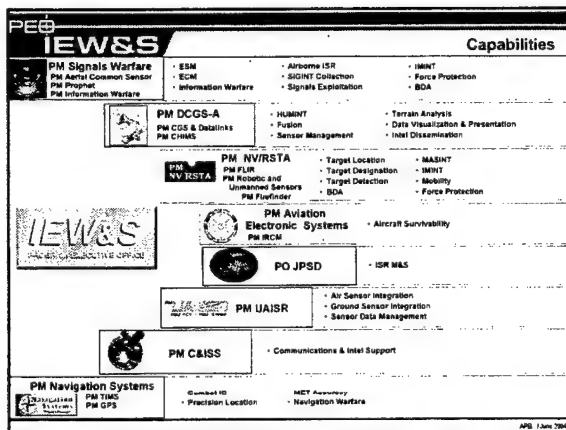
- **OBJECTIVE:** Award a multiple award task order contract (three - four awardces) for USAISEC system engineering and IT support services
- **CONTRACT TYPE:** The Government will award an indefinite delivery/indefinite quantity services contract with fixed price (pre-negotiated loaded hourly labor rates) and time and material line items
- **ESTIMATED VALUE:** Up to \$1B total requirements anticipated
- **TECHNICAL CONTACT:** Brad Blau, Phone: 520-538-8792
USAISEC Technical Director
- **ACQUISITION CONTACT:**
Kimberly A. Wentreck, Contracting Officer
Richard Wilson, Contract Specialist
Phone: 520-538-7415 or 520-538-7459
Email: Kimberly.Wentreck@us.army.mil, Rich.Wilson@us.army.mil
- **SOLICITATION #:** W9128Z-04-R-0004

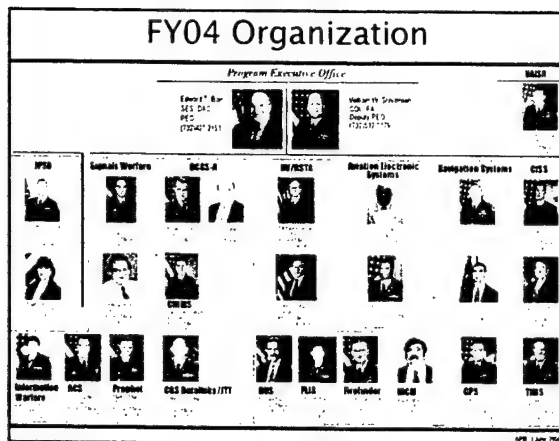
CECOM Bottom Line: THE WARFIGHTER

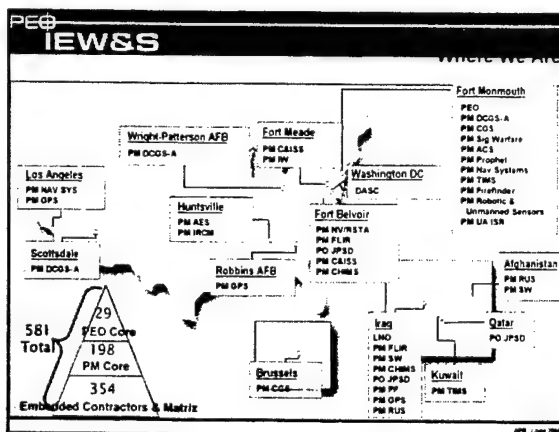
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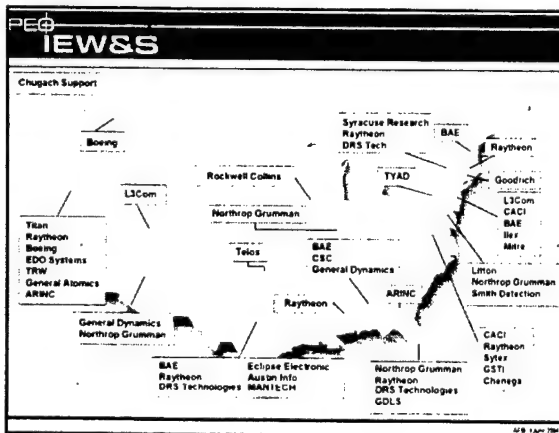


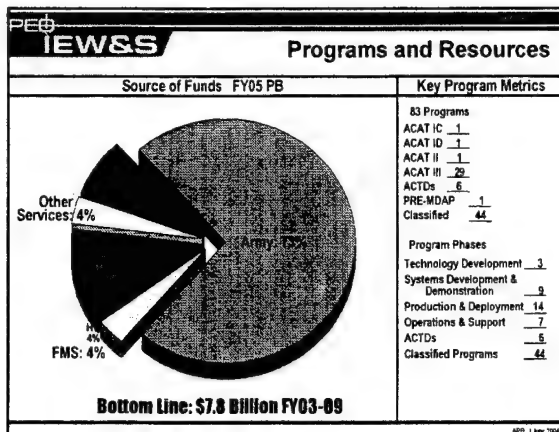


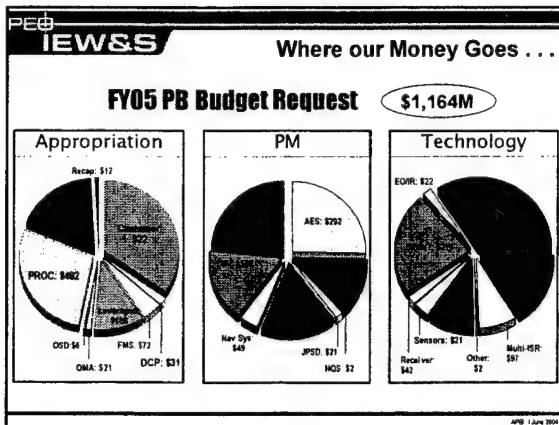


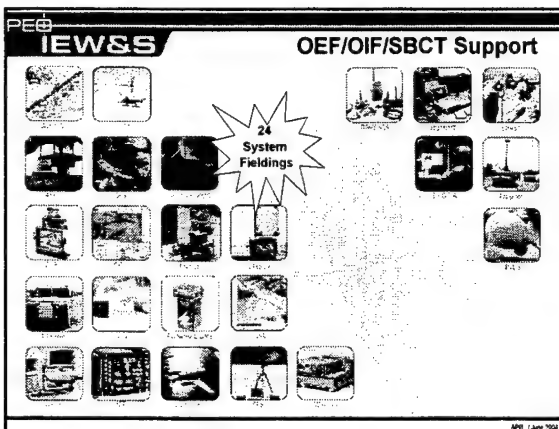












Our Army at War: Relevant and Ready

Advanced Planning Briefing for Industry
APBI -

Aviation Electronic Systems

1-2 June 2004

Mr. John Kamadulski
Deputy product Manager
Infrared Countermeasures

Agenda

- Battlespace Threats
- Threat Countermeasures: Currently Deployed Solutions
- Existing / Emerging requirements: Opportunities for Industry Partnerships

National Media

New York Times, Jan 18, 04
Iran Rebel Seen Using More Skill to Down Covertly
... including RPGs, SA-7's, SA-14's, and SA-16's

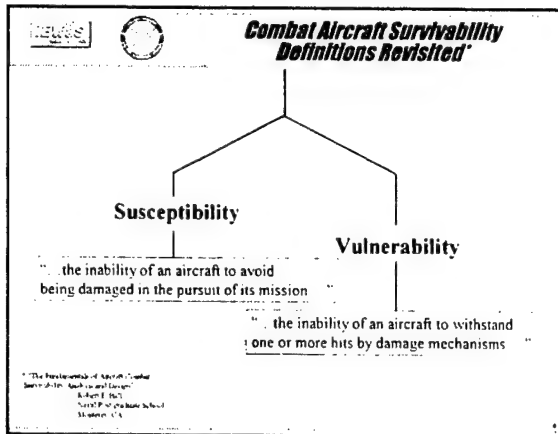
Baltimore Sun, Jan 18, 04
Helicopter Defense Systems Suffer Worst In Iraq
... critical maintenance problems with ... AN/AQ-144 ... shoulder fired missiles ... "our greatest concern" (USAF Gen John Handy)

National Defense, Mar, 04
Army Rushes to Deploy Defensive Gear on Aircraft
... to accelerate the production of the ATIRCM (Advanced Threat IR Countermeasures system) and SIRFC (Suite of RF Countermeasures) ...

Inside the Army, 4 Jan 04
Troops in Iraq Receive Improved Missile Warning System in One Year
... the goal is to accelerate development and testing of the Common Missile Warning System (CMWS) as soon as possible ...

Inside the Army, 9 Mar 04
Army Seeking Gunfire Detection System for Helicopters in Iraq
... Army now wants to find a firearms detection system that can be installed on to Army aircraft ...

New York Times, 8 Oct 03
U.S. Can't Locate Al Qaeda's Once Held in Iraq Arsenal
... portable missiles were fired at incoming planes several times ... Al Qaeda ... have not been reported to the public ...







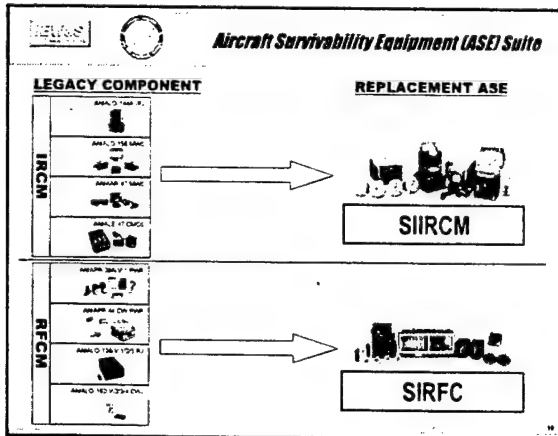


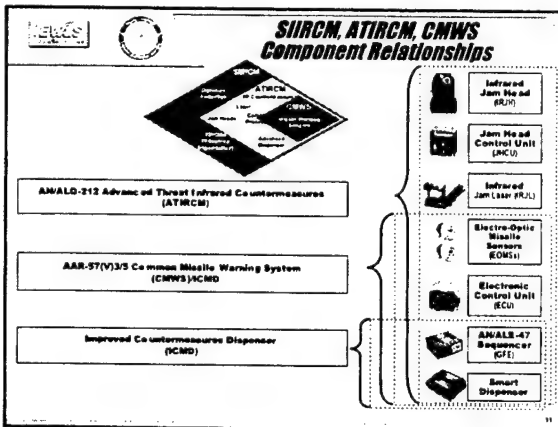
Army ASE in Use Today

- AN/ALE-47**
 - Countermeasure Dispenser Set
 - Capable of dispensing conventional or AIRCMM (M-206, M-211, M-212)
- AN/ALQ-144A**
 - Active IR Countermeasure
 - Continuously transmitting, rotating lamp
- AN/ALQ-156**
 - Missile Approach Detector
 - Pulse Doppler Radar
- AN/ALQ-136**
 - Pulse Radar Jammer
 - Automatic Radar Jamming

Army ASE in Use Today
(Cont)

- AN/APR-39A(V)1**
 - Radar Signal Detection Set
 - Radar Warning Receiver
- AN/AVR-2A**
 - Laser Detecting Set
 - AN/AVR-2B: Improved accuracy; significant weight reduction
- M-130**
 - Flare / Chaff Dispenser
 - Dispenses Chaff/Flare Decoys



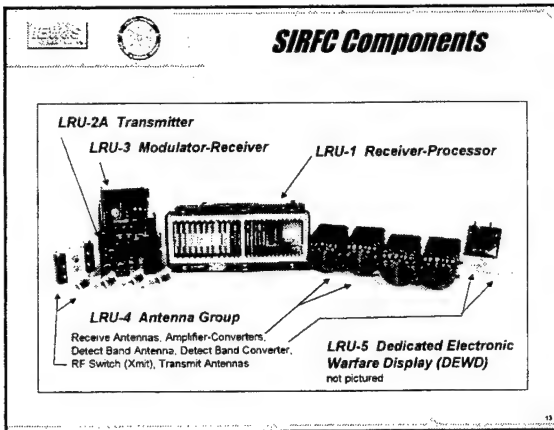


IRCM Summary

- ATIRCM / CMWS is in limited production today
- Integrations on host aircraft are ongoing
- Full-up ATIRCM to follow

"I want to see, as soon as possible, a plan to equip all our helicopters in Iraq and Afghanistan with the most effective defensive systems we have in development or procurement. Affordability is not the constraint for such a plan-- only what is doable considering technology, production, acquisition, and application."

Hon R.L. Brownlee, Acting Secretary of the Army - 7 Nov 03




RFCM Solution (Army)	
<p>Overview</p> <ul style="list-style-type: none"> US Army solution is Radar Warning Receiver (RWR) with growth to Jammer System is AN/ALQ-211(V) <ul style="list-style-type: none"> Suite of Integrated Radio Frequency Countermeasures (SIRFC) Modular design allows platform-tailored configurations 	<p>Capabilities</p> <ul style="list-style-type: none"> Situational Awareness thru RWR <ul style="list-style-type: none"> 360° Broad spectrum coverage Accurate threat location Increased protection with Jammer <ul style="list-style-type: none"> Multiple threat response Threat-specific techniques
<p>Funding</p> <ul style="list-style-type: none"> US Army funding restarts 2005 SIRFC will replace existing legacy RF ASE 	<p>Roadmap – 2005 - 2009</p> <ul style="list-style-type: none"> Develop B-kit leveraging existing variants Aircraft integration & qualify/test B-kit Procure B-kits Install B-kits on aircraft

AN/AVR-2A/B Laser Detecting Sets

AN/AVR-2A(V1)

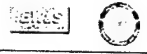
AN/AVR-2B(V1)



AN/AVR-2A(V) Laser Detection Set

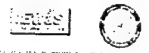
- Customers: US Army, US Navy, USMC, SOF, UK MOD
- Aircraft: AH-64D, OH-58D, UH-60L, HH-60H, CH-47E, MH-60K, MH-47E, MV-22, EH-101, AH-1W, UH-1N, RAH-66
- Performance: Bands I, II, III, AOA Quadrant, Band IV P3
- Threats: Rangefinders, Designators, Detected: Anti-Helicopter Beamriders
- Interfaces: APR-39, RS422, 1553 (Option)
- Systems Delivered: AVR-2 - 844, AVR-2A - 1157, Backlog - 113
- Future Requirements: US Army 1800, US Navy 700

- Very Low False Alarm Rate - < 1 per 4 hours
- Lightweight - 23 pounds (4 Sensor Version)
- Highly Reliable - > 850 hours MTBF for AN/AVR-2
- Easily Maintained (Organizational and Intermediate)
- Standard Laser Warning Receiver - Fielded by U.S. Army, Navy, Marines and SOF



Addressing Future Requirements: Opportunities for Industry Partnerships

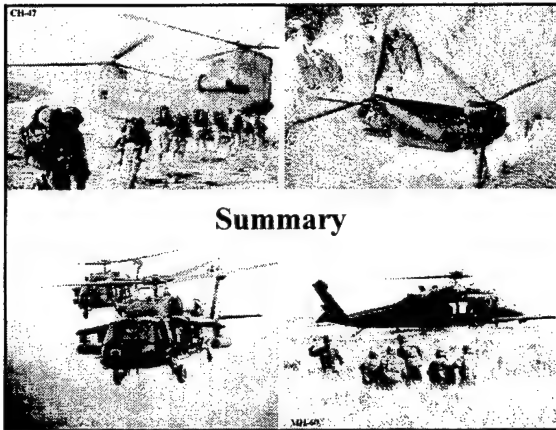
- Miniature, low cost sensors and countermeasures capable of detecting and defeating:
 - Small Arms fire
 - Rocket Propelled Grenades
 - Laser Guided Beam Rider Missiles
 - Anti-helicopter Mines



Science and Technology Objectives (STOs)

- Multi-Role Airborne protection System (#AMR-06)
- Low Cost Threat Warning (transitioned to TARDEC: TAR-14 Integrated Survivability ATD in FY04)

EW Countermeasures for Small Arms, RPGs, and Helicopter Mines



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PM Night Vision!

Reconnaissance, Surveillance and Target Acquisition

Advance Planning Meeting

Picture as seen through 2nd Gen FLIR

Tom Conway
NVRSTA
(703) 704-2661
tom.conway@nvl.army.mil

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PM NVRSTA Mission

PM NVRSTA develops, acquires, and provides superior, affordable day/night vision systems, weapon locating systems, and multi-sensor systems to the American warfighter.

Future FLIRs
- Image Fusion
- See Through The Wall
- Uncooled Thermal B-Kit
- Transparent Armor Concept
- Robotic & Unmanned Sensors
- Advanced Multi-purpose radar
- Cost Effective Targeting Systems
- Low Power Uncooled IR Sensors
- Sensor Payloads for Manoeuvre UAVs

AN/TPO-37
AN/TPO-47

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PM NVRSTA Organization

COL Michael Bowman
703-704-4400, DOW 654
10221 Burbeck Road, Bldg 299
mbo-bowman@nvl.army.mil

Deputy PM
John Drexham
703-704-3444

PM FLIR

Barbara Mallory (Acting)
732-477-5047, DOW 867
John.Mallory@nvl.army.mil

LTC Linda Herbert
703-704-1192, DOW 654
linda.herbert@nvl.army.mil

PM ROS

Michael Madden
732-477-5816, DOW 867
Michael.Madden@nvl.army.mil


- FOPEN
- ATR
- CS3
- CIRISS for FCS
- Uncooled Thermal B-Kit
- Transparent Armor

- DPM Jim Frederick 732-427-4791
- AN/TPO-36(V)8 Stan Dolores 732-427-5274
- AN/TPO-37 Vacant
- PBS2, AN/TPO-47 Jim Frederick 732-427-4791
- DPM Rael Schmidt 703-704-3050
- PL SGR/BOB Michael Doney 703-704-1422
- APM SGP MAJ Bailey
- PL DVE Jim Jones 703-704-1156
- APM DVE/PL Uncooled B-Kit MAJ Mohr 703-704-4070
- PL LRAS3/FS3 Maurice Cook 703-704-1059
- APM LRAS3 OPT Briggman 703-704-3889
- Avenger FLIR/MS/ANTAS-4 Dwayne Dwyer 703-704-0256
- FCS/3rd Gen FLIR/CS3/CRS3 Clayton Hall 703-704-3851
- APM FCS/3rd Gen FLIR/CS3/CRS3 MAJ Grossman
- DPM Anna Maria Van Brunt 732-427-6196
- UAV Payloads Eugene Letman 732-427-3007
- SAR/GMTI Russ Combes 732-427-5360
- Adv. EO/IR/LD/IRF Anthony Secco 732-427-5251
- APM SBCT Sensors MAJ Michael Wegler 732-427-5818
- REMBAS5 Andrea Kucy 732-427-5188
- AN/PPS-3D Ramon Llanos 732-532-1888
- APM FCS Sensors MAJ Michael Knappe 732-427-5707
- FCS-UGS Steve Koster 732-532-5696
- Sensors, STTW Steve Koster 732-532-4927

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**PM NV/RSTA Sensors In
Operation Iraqi Freedom**

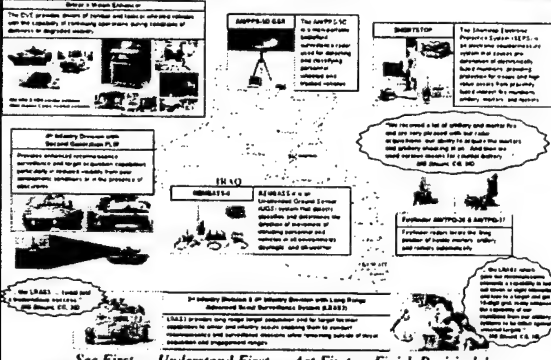


**LRAS3 with 3rd Infantry Division in
"Operation Iraqi Freedom"**

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**PM NV/RSTA Sensors In
Operation Iraqi Freedom**



See First... Understand First... Act First... Finish Decisively!

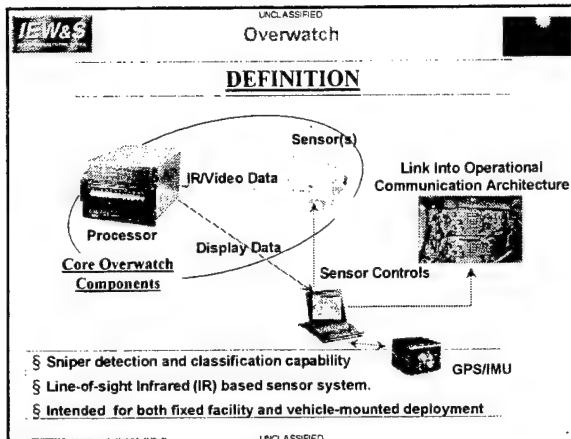
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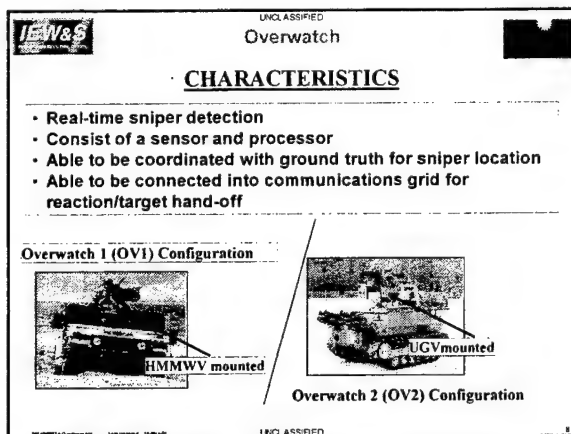
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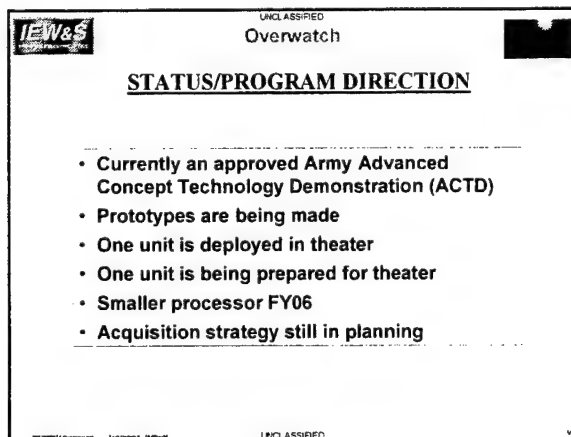
Overwatch


- Tom Conway
- Senior Engineer
- (703) 704-2661
- thomas.conway@nvl.army.mil

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Overwatch




CHALLENGES


- Low quantities
- Still in S&T phase
- Awaiting 'user' feedback
- Capability cuts across many potential programs
- Size and weight of core components

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1




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Overwatch




- OBJECTIVE: Detection and classification of sniper fire
- CONTRACT TYPE: TBD
- ESTIMATED VALUE: TBD
- KEY MILESTONES: ACTD ends FY07
- TECHNICAL CONTACT: Mr. Tom Conway, (703) 704-2661
- ACQUISITION CONTACT: TBD
- SOLICITATION # or RFQ #: TBD

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11

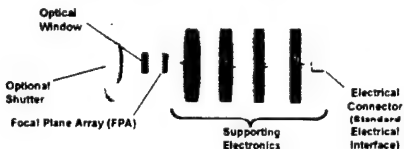


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Uncooled B-kit Demo/Qualification



DEFINITION

Design and develop a common thermal module that integrates potentially into soldier applications, ground vehicle applications, airborne applications, and missile applications.



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17

UNCLASSIFIED
Uncooled B-kit Demo/Qualification

CHARACTERISTICS

- Uncooled Thermal Technology
- 640X480 FPA (U3)
- Defined by Performance Specification and Interface Control Document

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Uncooled B-Kit

STATUS/PROGRAM DIRECTION

• Specification and ICD Version 1.0 completed (Mar 04)
 • Currently under contract for Phase I

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Uncooled B-kit Demo/Qualification

CHALLENGES

- Size, Weight, & Power
- Interchangeability
- Performance
- Modularity

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IEW&S UNCLASSIFIED
Uncooled B-kit Demo/Qualification

- **OBJECTIVE:** The objective of the Uncooled B-kit Demo/Qualification phase of the program is to design and develop a module that will meet the UBK ICD and Performance Specification. In addition, multiple vendor's modules will need to be interchangeable as demonstrated in a DVE.
- **CONTRACT TYPE:** CPFF; approximately 12 months in duration
- **ESTIMATED VALUE:** 3 awards totaling \$5M.
- **KEY MILESTONES:** RFP release August 2004; Contract award Jan 2005
- **TECHNICAL CONTACT:** Major Fritzgerald McNair (703) 704-4070, DSN 654-4070
- **ACQUISITION CONTACT:** Ms. Debra Gilligan, CECOM Acq. Center, 732-532-5454
- **SOLICITATION # or RFQ #:** TBD

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IEW&S UNCLASSIFIED
EO/IR/LD Payload for ER/MP UAV

DEFINITION

Definition: The Army is funding the development of a new Unmanned Air Vehicle (UAV) to meet the requirements of the Extended Range/Multi Purpose (ER/MP) UAV ORD (Pending JROC Approval)

- PM UAVS under PEO Aviation will be soliciting for the Air Platform
- PM RUS under PEO IEW&S will be soliciting for the EO/IR/LD Payload

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IEW&S UNCLASSIFIED
EO/IR/LD Payload for ER/MP UAV

CHARACTERISTICS

- Characteristics of the payload are being finalized, but the following requirements are known:
 - Payload Weight: 100lbs or Less
 - Size: 1.9 Cu Ft or Less
 - Power: < 900 Watts
 - Recognition Slant Range: 8Km
 - Laser Designation Slant Range: > 8km
 - System Target Location Error: 25m or Less

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IEW&S
INTEGRATED ELECTRONIC WARFARE SYSTEMS

EO/IR/LD Payload for ER/MP UAV

STATUS

- Request For Information sent to Industry
 - PM UAVS Hosted ER/MP Industry Day on May 5th
 - Final EO/IR/LD Solicitation being prepared for May Release
 - Anticipate EO/IR/LD Contract Award by Dec 2004.

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IEW&S
INTEGRATED ELECTRONIC WARFARE SYSTEMS

EO/IR/LD Payload for ER/MP UAV

CHALLENGES

- Schedule
 - First payload required for Host Platform Integration by 2nd Quarter FY06
 - Balance of Payloads due by 4th Qtr FY06
- Performance
 - Accuracy Requirements will be demanding
- Cost
 - Minimal Development funding
 - Need to minimize recurring payload cost to support UAV application.

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IEW&S
INTEGRATED ELECTRONIC WARFARE SYSTEMS

EO/IR/LD Payload for ER/MP UAV

- Contract Type
 - To Be Determined.
 - Estimated Value: \$10M
- Key Milestones
 - Award - Dec 2004
 - Initial Delivery - Jan 2006
 - Final Delivery - July 2006
- Technical Contact - Eugene Lehman, APM Payloads

Phone: DSN 987-8007 COM: (732) 427-8107
 FAX: DSN 987-5072 (732) 427-5072
 Email: Eugene.Lehman@iew.s.monmouth.army.mil
 Address:
 PM RUS
 Attn: SFAE-IEW&S-NV-RUS (E Lehman)
 Bldg. 2525, Box 2
 Charles Wood Area
 Fort Monmouth, NJ 07703 5503
- Solicitation #: TBD

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Next Generation UGS

DEFINITION

- PM RUS is Responsible for the Development and Fielding of Current Generation UGS (REMBASS II) and the management of Future Combat System UGS for the Unit of Action (UA). There is also a requirement for near term UGS that are lower cost and more capable than current UGS for use in Force Protection and potentially in the Army's Task Force Modularity efforts to turn today's Army in to Units of Action.
- PM RUS is looking to pursue Next Gen UGS for Force Protection, leveraging our experience with Today's UGS and our efforts with FCS UGS.

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Next Generation UGS

CHARACTERISTICS

- Low Cost
- Trip Detection Capability
- Provide for Rapid/Remote Emplacement
- Extended Range Communications
- ID Capability
- Extended Operation without Battery Replacement
- Reprogramming ability
- Interface to current and future Army Battle Command Systems
- Tactical, force protection and border security operation
- Networked

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Next Generation UGS

STATUS/CHALLENGES

- Status:
 - Currently in study phase researching sensors currently in production, development and commercial as alternatives.
 - Will be soliciting in FY05 for Industry Solutions
- Challenges:
 - Schedule; Delivery in FY05 If Possible
 - Performance; Extended Communications Ranges and Operation on Battery Power
 - Cost; Will need to be expendable

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Next Generation UGS

- Contract Type; TBD
- Estimated Value: \$7M
- Key Milestones;
 - RFP Release: Nov 2004
 - Contract Award: Apr 2005
 - Delivery: Nov 2005
- Technical POC – MICHAEL C. KARPIE

PM Robotic & Unmanned Sensors
 Phone: DSN 987-6848 / COM (732)427-6848
 FAX: DSN 987-5072 / (732)427-5072
 Email: Michael.Karpie@iew.s.monmouth.army.mil
 Address: PM RUS
 Attn: SFAE-IEW&S-NV-RUS (M. Karpie)
 Bldg. 2525, Bay 2, Charles Wood Area
 Fort Monmouth, NJ 07703-5503
- Solicitation #: TBD

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OWL/SADA

DEFINITION

SADA – Standard Advanced Dewar Assembly
OWL – One Watt Linear cryogenic cooler

In support of
HTI SGF – Horizontal Technology Integration
Second Generation Forward Looking Infrared

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OWL/SADA

CHARACTERISTICS

- SADA is detector/cooler combined
- Cooler is similar to older; but longer life, more reliable
- 12,000 hours vs. 4,000 hours
- Interchangeable with 2nd GEN HTI in terms of form, fit & function

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OWL/SADA

STATUS

- Customer wants longer reliability cooler
- Assembly buy possible
- RFP June 04
- Contract award Aug 04

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OWL/SADA

CHALLENGES

- 12K hour cooler
- Frequent customer requests for acceleration
- Repair turn around
- Working to combine SADA/OWL buys

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OWL/SADA

- OBJECTIVE: Procure SADAs... Improve life if possible
- CONTRACT TYPE: FFP
- ESTIMATED VALUE: ~ \$31M
- KEY MILESTONES: RFP Jun 04, Award Aug 04
- TECHNICAL CONTACT: Kyle Peddicord, (703) 704-0143
- ACQUISITION CONTACT: Janet Colyard, 732-427-1464
- SOLICITATION # or RFQ #: TBD

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BICU

CHALLENGES

- Block 1 BICU design not yet requalified
- ECP to be available 1 Jun 04

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BICU

- OBJECTIVE: Procure Block 0 & Block 1 BICUs, 189 base & 465 options
- CONTRACT TYPE: FFP, multi-year with options
- ESTIMATED VALUE: Base -- \$4M, Total value -- \$14M
- KEY MILESTONES: 1st delivery Sep 05
- TECHNICAL CONTACT: Michael Doney, (703) 704-1422
- ACQUISITION CONTACT: Ms. Debra Gilligan, CECOM Acq. Center, 732-532-5454
- SOLICITATION # or RFQ #: None yet

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Closing

Website address-
<https://peoiews.monmouth.army.mil/nvrsta>

Home

Overview

Products

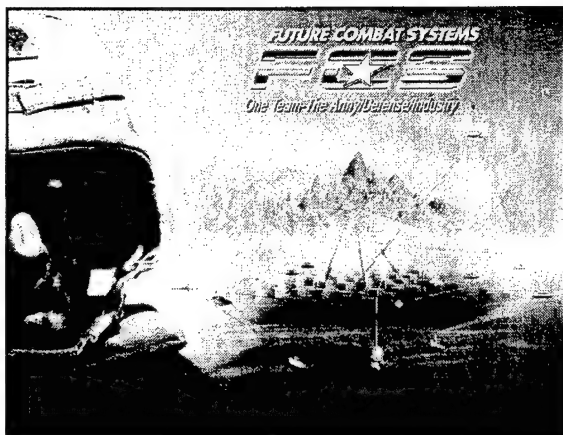
Future Systems

PMI R&D

PMI Feedback

MISSION
 PMI NV/MSA develops, acquires, and provides superior, affordable, day/night vision systems, weapon locating systems, and man/air/vehicle to the American warfighter.

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FUTURE COMBAT SYSTEMS

FCS

One Team-The Army/Defense/Industry

**Network Integration for FCS Equipped Units of Action:
Bringing Net-Centricity to the Future Force**

Advance Planning Briefing for Industry
2 June 2004
Fort Monmouth, NJ

COL Jonathan Maddux PM UA Network Systems' Integration Fort Monmouth, NJ	Mr. Donald DePree Lead C4ISR IPT, LSI Huntington Beach, CA
--	--

**Program Manager's Intent: Field FCS-equipped Units of Action with
Threshold Future Force Capability by the End of the Decade**

Outline

- FCS Program Overview
- C4ISR Capabilities
- C4ISR Related Challenges

ENCLOSURE 1 OF 10
3

US Army's "Future Force" Vision & FCS User Requirements

Future Force

- Joint, Interagency and Multi-National Capabilities
- Increased Strategic Responsiveness
- Dominant across Full Spectrum Operations
- Campaign Quality Force
- Enabled by Knowledge
- Adaptive Modular Organizations
- 3-7 Days Self-sustainment
- FCS: Family of Systems/ Systems of Systems
- Soldiers and Leaders Enabled by Technology

Future Force "Space to Man" → Future Force "Factory to Platform" →

What Is Future Combat Systems?

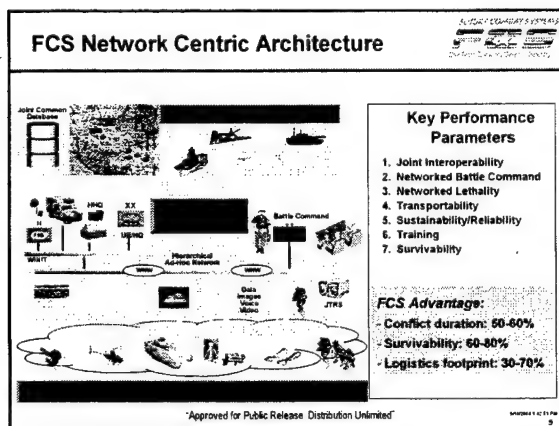
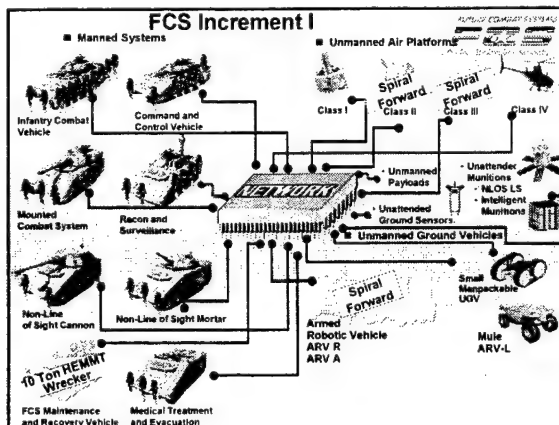
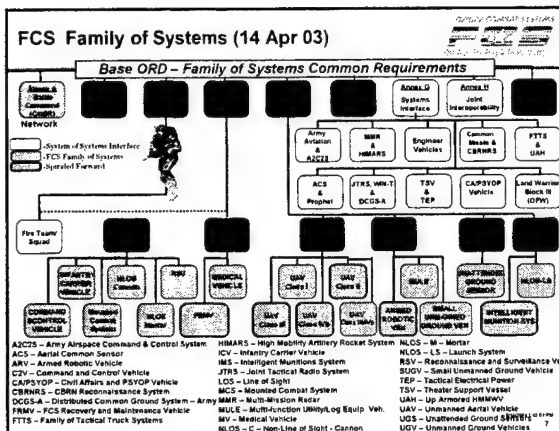
- FCS is a highly integrated structure of manned and unmanned, air and ground assets, bound by a distributed network to act as a unified combat force
- FCS has the full spectrum of combat functions inherent in its capabilities, including embedded training and supportability
- FCS is readily task organized for the mission
- FCS is the basic building block of the Future Force and the Unit of Action (UA)

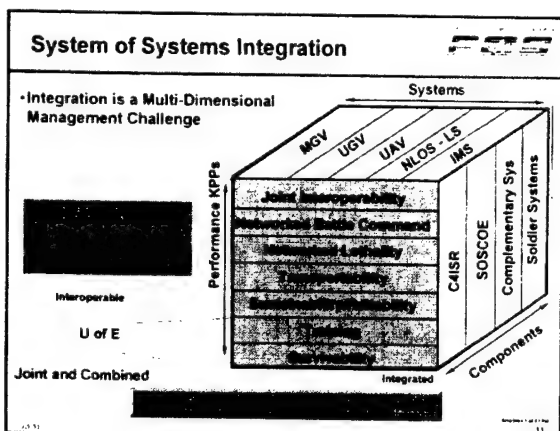
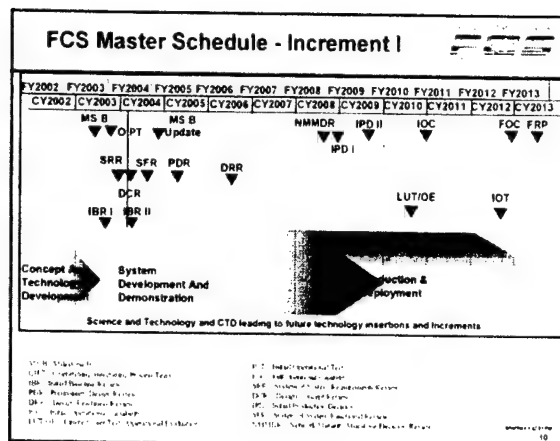
Units of Action

Units of Affliction

Objective - An Integrated Unit of Action

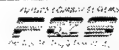
- Requirements allocated and derived from an integrated architecture
- Developed by the "One Team" Partners
- Multiple integration objectives
 - Vertical
 - Horizontal
 - KPP Performance
 - U of E and JIM
- Capabilities developed, integrated and tested incrementally





- ### Key Tenets of the Program
- Create Opportunity for *Best of Industry* to Participate
 - Leverage Government Technology Base to Maximum Extent
 - Associate On-Going Enabling Efforts With LSI-Led Activity
 - Collaborative Environment from Design Through Life Cycle
 - As a Minimum, Commonality at Subsystem/Component Level
 - Design/Plan for Technology Integration and Insertion
 - Maintain and Shape the Industrial Base for the Future
 - Retain Competition throughout Future Force Acquisition
 - Appropriate Government Involvement in Procurement Processes
 - Consistent and Continuous Definition of Requirements
 - Maintain and Shape Government Acquisition Community
 - Program Affordability — Balance Performance and Sustainment
 - One Team — Equipping the Joint Warfighter with the World's Best Capability

Overarching Acquisition Strategy



- Buy Future Combat Systems; Equip Soldiers; Field Units of Action (UA)
- Embrace Evolutionary Acquisition While Requirements Mature
- Contracting via Lead Systems Integrator
- Demonstrate Live and Virtual-Force Operational Capabilities of the UA
- Balance Test and Evaluation With Modeling and Simulation
- Sustain DARPA/Army Collaborative Relationship for the Future
- Expand to Joint, Interagency, and Coalition Partners
- Design for Supportability-Performance-Based Logistics
- Identify and Manage Risk Throughout the Program

*It Is About the Networked System of Systems...
and How it Enables Dominant Land Combat.*

SECURITY 1 02 11 PM
13

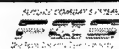
Competition Plan



- Competition is a key Tenet of the Program
- Promotes Competition to the maximum extent
- Capitalize on Broad Industry Announcement process
 - Identifies and share sources for key technology areas
 - Continued Market Research to identify and incorporate:
 - Small Businesses/Non-Traditional Defense Contractors
 - Technology requirements for technology insertion
- Involves all Major Partners in Process
- A key flow down in all major contracts
- Strategy encompasses Boeing/LSI Best Practices
 - Best Value approach to source selection
 - Senior Government participation in all phases including final source selection approval
 - Small and Non-traditional Business participation
 - Partner involvement to achieve horizontal integration

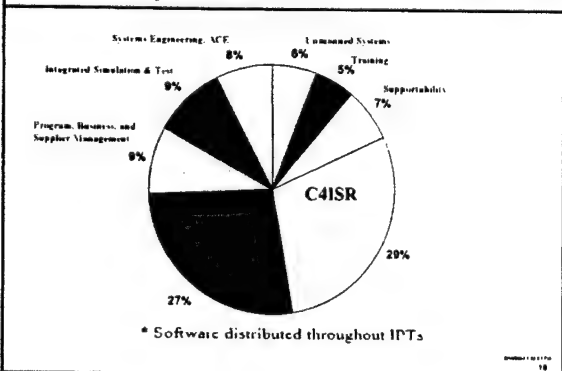
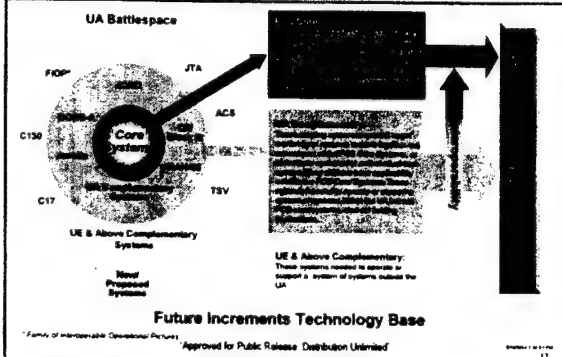
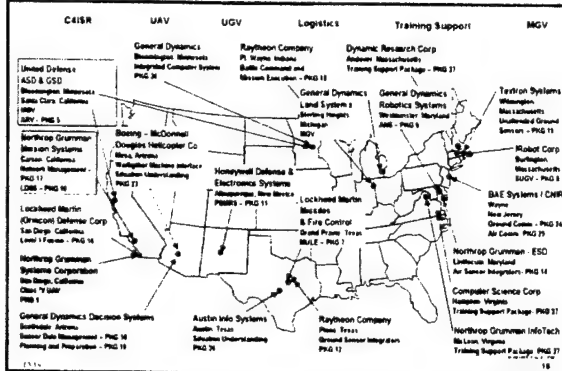
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Contracting Approach



- Broad Industry Announcements (BIA's)
 - Utilize BIA process to identify and include the Best of Industry for FCS
 - Significant industry participation (over 4500 proposals evaluated)
- Conducted Nine industry briefings with over 1100 participants
- System Design and Development (SDD) Competition
 - Significant industry participation in Specification, SOW and and RFP development
 - RFPs unrestricted to industry
 - Over 1600 RFPs released to 309 suppliers for 23 subcontracts
- Conducted "Best Value" source selection
 - 23 supplier partners selected (21 large and 2 small)
 - Debriefs given to suppliers detailing ratings and rankings
- FCS policy encourages Small business participation
 - Small businesses are a large part of our "Best of Industry" team
 - Small business plan is aligned to contract goals that are flowed down to our large business partners

SECURITY 1 02 11 PM
15



23 Procurement Packages

(C4ISR = 12 + SOSCOE)

11 Pkgs are Non-C4ISR

- Class IV UAV
- Class III UAV
- Class I UAV
- Class II UAV
- ARV
- MULE
- SUGV
- Auto Nav*
- LDSS*
- PS/MRS*
- Training Support Pkg

12 Pkgs are C4ISR

- C2**
 - Battle Cmnnd/Mission Execution
 - Planning and Preparation
 - Situation Understanding
 - Warfighter Machine Interface*
- C&C**
 - Network Management
 - Ground Vehicle Comm Integrator*
 - Air Vehicle Comm Integrator*
 - Integrated Computer
 - Ground Vehicle Sensors*
- ISR**
 - UAV Sensors*
 - Unattended Ground Sensors
 - ISR Fusion

* At the boundaries - Require additional coordination with other systems

C4ISR Work Packages

General Dynamics - Bloomington, Minnesota
Integrated Computer System - PKG 26

Boeing, Mesa, AZ
Warfighter Machine Interface - PKG 23

Northrop Grumman Mission Systems - Carson, California
Network Management - PKG 17

Lockheed Martin (Cicero)
Defense Corp - San Diego, California
Level 1 Fusion - PKG 16

General Dynamics Decision Systems - Scottsdale, Arizona
Sensor Data Management - PKG 18

Austin Info Systems - Austin, Texas
Situation Understanding - PKG 20

Raytheon Company - Ft. Wayne, Indiana
Battle Command and Mission Execution - PKG 19

Textion Systems - Wilmington, Massachusetts
Unattended Ground Sensors - PKG 15

BAE Systems/CNIR - Wayne, New Jersey
Ground Comm - PKG 14
Air Comm - PKG 25

Northrop Grumman Sys Corp - Linthicum, Maryland
Air Sensor Integrators - PKG 14

Raytheon Network Systems - Plano, TX
Ground Sensor Integrators - PKG 12

Outline

- FCS Program Overview
- C4ISR Capabilities
- C4ISR Related Challenges

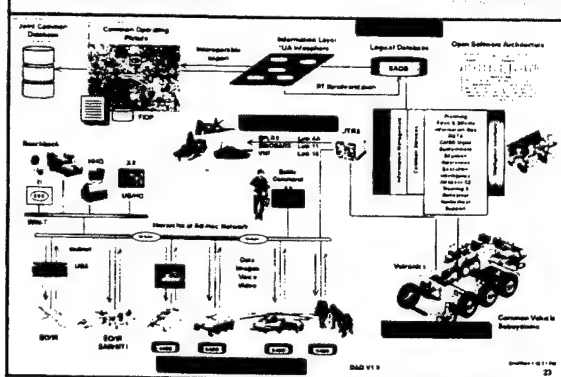
Network Centric Operations

- A warfighting approach that emphasizes *speed*, *precision*, *flexibility*, and superior *knowledge* to concentrate combat power, and prevent resistance.
- Key Attributes:
 - *Information Superiority* through widespread Networked Communications
 - Common information availability to create *Shared Awareness*
 - Increased Speed of Command and Adaptability by using *Intelligent Decision Aids*



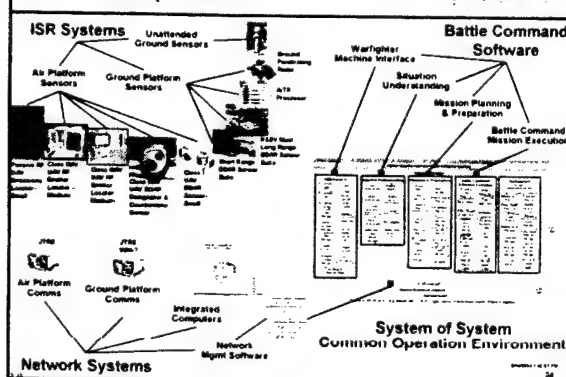
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C4ISR Overview



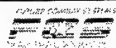
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C4ISR Components

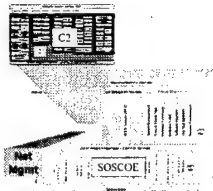


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Major C4ISR Software Components

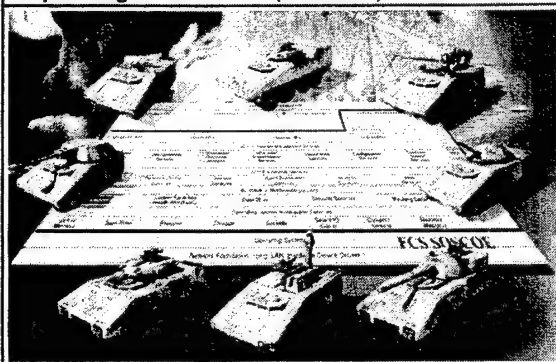
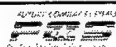


- **SOSCOE – System of System Common Operating Environment**
 - Admin Services
 - Application Program Interface
 - Information Management Services
 - COTS NDI
- **Command and Control (C2) Applications**
 - Battle Command & Mission Execution
 - Planning and Preparation Services
 - Situational Understanding
 - Warfighter Machine Interface
- **Network Management**

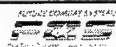


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System of Systems Common Operating Environment (SOSCOE)



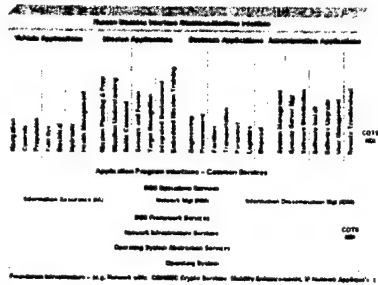
SOSCOE: The Key to System of Systems Integration



- **Eliminate C2 stovepipes and reliance on special purpose systems**
 - Common C2 software systems for all warfighters
 - Echelon- and mission-appropriate functionality conditioned by C2 policies
 - Minimum number of special purpose systems for specialized functions
- **Develop an evolving system based on open system, standards based software architectures**
 - Use of legacy codes within a modular software architecture
 - Minimum use of legacy systems
- **Distribute functionality to the lowest level possible by resource allocation**
 - Dynamic, automatic allocation of resources based on Commander's intent, Priorities, and Rule Sets (Orders)
 - Rapid response of support to units (Fires, etc.)
 - New codes and capabilities to enable core NCW functionality
 - Automatic allocation
 - Dynamic adjustment
 - Commander sets thresholds and parameters
- **Enable real-time, dynamic collaboration based on task similarity, situation, mission**
 - Team of teams – orient to common goals
 - De-emphasize hierarchical structures
 - Erect fractal C2 structures to organize functionality and code packages by echelon, role and mission
- **Mechanisms**
 - **Softwiring**
 - Implement doctrine by configuration settings, not by hardwiring task flows
 - Design in the capability to evolve through experimentation
 - **Virtual Staff**
 - Services and automated agents
 - Split Staff operations
 - Reduced footprint in area of operations
 - **Collaboration made transparent and ubiquitous**
 - Automation
 - Dynamic task groups
 - Dynamic networking
 - **Ubiquitous C2 and information management services**
 - **Distributed, low latency peer to peer information management**

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- SOSCOE is a layer of software that manages delivery and synchronization of information across the FCS UA
- SOSCOE provides a open application interface and isolates Battle Command Applications from the ad hoc network



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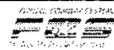
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- All components (C2 services) will be based on an open system architecture and facilitate block upgrades spiral development throughout the life of the C2 system
- These C2 services are the 'building blocks' or 'primitive functions' designed to support an integrated C2 system
- Identification and definition of C2 services focuses on the minimization of stovepipe functions and applications
- A "service" will be developed once and reused by other "service" providers
 - An independently compiled software unit that knows how to perform some foundational tasks
 - The set of C2 services is non-overlapping and spans the C2 problem domain.

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(continued)

WMI

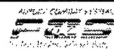


- Integrates the FCS warrior's visualization and interaction needs for data and services across all manned ground vehicles and support equipment. A key characteristic will be the ability to separate the WMI visualization and interaction methods provided to the FCS war fighter from the generation of data and services within the underlying applications
- The WMI Software Layer is an integral part of the FCS Software Architecture and integrates the FCS war fighter's visualization and interaction needs for data and services across all manned ground vehicles and associated off-vehicle equipment.
- The WMI concept also extends to control unmanned vehicles and non-developmental vehicles.

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Planning and Preparation

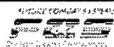


- Supports development of plans and the preparation of the Unit of Action to execute them.
- This package supports all planning, rehearsal, and preparation activities related to FCS UoA missions.
 - Planning packages need to support planning activities prior to, during, and after a given mission.
 - Anticipatory planning that occurs during battle execution, that is, during a mission, will utilize planning algorithms from this package as well.
 - Constructive simulation and evaluation are supported.
 - Preparation includes virtual simulation, AAR, training, and mission rehearsal.
 - Planners provide editors where necessary to allow modifications to the planner objectives, constraints, and recommendations from the operator.

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Battle Command



- Provides the functions and services to conduct, refine and execute missions
- Includes the functionality to:
 - Access data from national technical means
 - Allocate effectors to targets and conduct fires
 - Request artillery support from UE, synchronize fires with air-ground operations
 - Assess enemy actions and collect friendly force information
 - Evade and escape, protect dismounted soldiers and platforms
 - Request artillery support from UE, synchronize fires with air-ground operations

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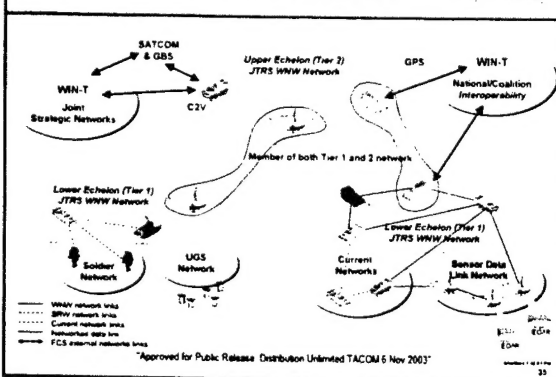
Situation Understanding

- This component of C2 contains the services needed to support the war fighter in any role, in building a sufficient understanding of the situation for that role that seeing first and acting optimally is the most likely outcome.
- It gathers the common operational picture (COP) data for the scope of that role by employing the four levels of intelligence fusion and augmenting that with high fidelity records of mission progress and readiness.
- It engages the war fighter in evaluations and reporting as needed through the War fighter Machine Interface (WMI).
- It relies on Information Management (IM) services to publish and subscribe the needed data.

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Network Communications Architecture



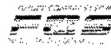
Comms Network Management Functions

- Network Management
- Fault and Performance Management
- Configuration and Reconfiguration Management
- Security Management
- Key Management
- Spectrum Management
- Policy Management
- Network Planning
 - High Level Planning
 - Detailed Mission Planning
 - Dynamic Re-Planning and Reconfiguration
- Performance
 - Capacity/Scalability
 - Bandwidth Consumption
 - Latency/Response Time
 - Accuracy

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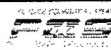
Integrated Computer System



- The C4ISR computer system will be provided by a single Prime contractor
- Deliverables
 - Hardware
 - Processors, displays, controls, storage, memory, I/O, power, etc
 - Software
 - Operating System
 - Operating System extensions
- Driving design considerations
 - Open Architectures and Standards
 - Commonality
 - Upgrade ability
 - Maximize ability to utilize technological advances
 - Minimize impacts of technology obsolescence

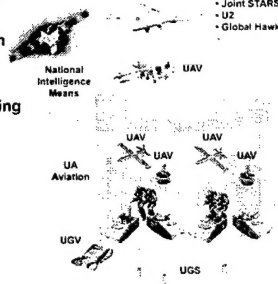
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See First/Persistent ISR



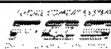
Distributed/Networked Sensors

- Provides unequalled Situational Awareness down to the Soldier System
- Enhances survivability through knowing and avoiding enemy fires
- Enables precision engagement beyond the effective range of the opponent
- Maintain contact and engagement in detail throughout the mission



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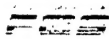
Outline



- FCS Program Overview
- C4ISR Capabilities
- C4ISR Related Challenges

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Sensor Related Challenges



- Mine Detection
- Lightweight, Low Cost, High Quality UAV Sensors
- Through the Wall Sensors
- FOPEN (sensing through foliage)
- Unattended Ground Sensors Dispenser
- Combat ID
- Directional Broadband Antennas

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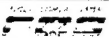
Networking/C2 Related Challenges



- Ad Hoc Wireless Network
- Quality of Service Driven Network
- High Data Rate Comms
- Unmanned Relay
- Network Centric C2
- Collaborative C2 / Warfighter Machine Interface

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Facilitating the Future



.....How to "Get There" from here.....

- Unprecedented "Partnership"
- Revolutionary/Evolutionary Acquisition Approach
- "Best of Industry" Business Approach
- Spiral Development/Technology Insertion
- Integrated Simulation and Test

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